

THE USE OF CRISIS MANAGEMENT BY EXTENSION
IN HURRICANE PREPAREDNESS

By

ABBE R. DEGROAT

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To my parents, Robert and Carole, and my siblings, Kira, Kalen, and Ben, for their continued support in all my efforts.

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Abbe R. DeGroat

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When a disaster is threatening the state of Florida, the Florida Cooperative Extension Service (FCES) is called upon as a support agency to the Florida Department of Agriculture and Consumer Services. CES serves to educate commercial and non-commercial pet and livestock owners on how to safely care for their animals during emergency situations as well as providing them with food, water, and power. In addition to providing such information, FCES aids Florida residents in times of disaster by being a source of research-based information concerning disaster preparation, what to do during a disaster, and recovery from disasters.

The purpose of this study is to determine the readiness on the part of University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) Extension faculty to serve as front-line responders in the preparation and recovery from the 2004 hurricane season. In addition, the study was conducted to determine how well agents were prepared to deal with professional demands, job expectations and clientele demands, while coping with

personal hardships as a result of the hurricanes. A third purpose was to discern the availability of a crisis management plan to guide Extension faculty on internal, communications, roles, and responsibilities.

This study was based upon crisis management, which is a means to prevent or lessen the negative outcomes of a crisis so that the organization, stakeholders, and/or industry are protected from damage. Crisis management is comprised of four phases including prevention, preparation, performance, and learning. An important aspect of the preparation phase is the crisis management plan, which allows an organization to respond efficiently and effectively in the event that a crisis occurs.

The survey was sent to all county and district Extension faculty with viable email addresses as of October 2004. The overall response rate consisted of 208 out of 328 (63.41% response rate). A pre-notice letter was sent to all county Extension faculty and District Extension Directors on November 30, 2004 by email to inform potential respondents of the forthcoming questionnaire and to encourage their participation. Several days after, a second email was sent to all Extension faculty from the researchers in the Department of Agricultural Education and Communication. This email consisted of an overview of the study, as well as a link to the web-based questionnaire. Two waves of follow-up were sent to encourage non-respondents to complete the questionnaire. The link to the survey was closed on January 5, 2005, which prevented any new responses.

Results from this study concluded that most Florida Cooperative Extension faculty were not fully prepared to act as front-line responders during the 2004 hurricane season. In addition, a comprehensive, state-wide crisis management is needed to identify clear professional roles and job expectations for faculty.

CHAPTER 1 INTRODUCTION

The Atlantic hurricane season officially begins on June 1 and ends on November 30. For people living on or near the coasts of the Atlantic Ocean and the Gulf of Mexico, this is a very critical time of year. This is particularly true for Florida residents, whose peninsula is between the Atlantic Ocean and the Gulf of Mexico.

Because of the widespread damage across the state of Florida as a result of the 2004 hurricane season, it is evident that the hurricanes created a crisis situation. A crisis is defined as “an event that is an unpredictable, major threat that can have a negative effect on the organization, industry, or stakeholders if handled improperly” (Coombs, 1999, p.2). Crises can be sorted into more specific families, including economic, informational, human resource, reputational, psychopathic acts, and natural disasters (Mitroff, 2001, p. 34).

The purpose of this study was to determine the readiness on the part of University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) Extension faculty to serve as front-line responders in the preparation and recovery from the 2004 hurricane season. In addition, the study was conducted to determine how well agents were prepared to deal with professional demands, job expectations and clientele demands, while coping with personal hardships as a result of the hurricanes. A third purpose was to discern the availability of a crisis management plan to guide Extension faculty on internal communications, roles, and responsibilities.

Hurricanes

According to the National Oceanic and Atmospheric Administration (NOAA), a hurricane is defined as a tropical cyclone with winds that have reached a constant speed of 74 miles per hour or more and is found in the North Atlantic Ocean, the Northeast Pacific Ocean east of the dateline, or the South Pacific Ocean east of 160 E (Landsea, no date). The winds of a hurricane form a large spiral around a center, termed the “eye,” which is approximately twenty to thirty miles wide. If a hurricane strikes land, it has the ability to cause torrential rains, high winds, and storm surges. The strength of a hurricane is assessed according to the potential wind and storm surge damage it may cause, and then it is assigned a category from the Saffir/Simpson Hurricane Scale, ranging from Category 1 to 5. For example

- **Category 1:** Winds of 74 to 95 mph. Damage primarily to shrub and tree foliage, and to unanchored mobile homes. No major damage to other structures. Some damage to poorly constructed signs. Low-lying coastal roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.
- **Category 2:** Winds of 96 to 110 mph. Considerable damage to shrub and tree foliage; some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roofing materials of buildings. Coastal roads and low-lying inland escape routes cut by rising water two to four hours before arrival of the hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages torn from moorings.
- **Category 3:** Winds of 110 to 130 mph. Foliage torn from trees; large trees blown down. Practically all poorly constructed signs blown down. Some damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. Serious flooding at coast and many smaller structures near coast destroyed; large structures near coast damaged by battering waves and floating debris. Low-lying inland escape routes cut by rising water 3 to 5 hour before hurricane center arrives.
- **Category 4:** Winds of 131 to 155 mph. Shrubs and trees blown down; all signs down. Extensive damage to roofing materials, windows and doors. Complete failure of roofs on many small residences. Complete destruction of mobile homes. Major damage to lower floors of structures near shore due to flooding and battering

by waves and floating debris. Low-lying inland escape routes cut by rising water 3 to 5 hours before hurricane arrives. Major beach erosion.

- **Category 5:** winds greater than 155 mph. Shrubs and trees blown down; considerable damage to roofs of buildings; all signs down. Very severe damage to windows and doors. Complete failure of roofs on many residence and industrial buildings. Extensive shattering of glass in windows and doors. Some complete building failures. Small buildings overturned or blown away. Complete destruction of mobile homes. Storm surge greater than 18 feet about normal tide. Low-lying inland escape routes cut by rising water 3 to 5 hours before hurricane center arrives (NOAA, 2005).

According to the National Oceanic and Atmospheric Administration (2004), in the past 25 years the United States has sustained 62 weather-related disasters in which the overall damage and costs exceeded \$1 billion. The total cost of such natural disasters exceeded \$390 billion (NOAA, 2004). Of those weather-related disasters, 18 were hurricanes that caused a total of over \$120 billion in damage. In the past 25 years, Florida alone has been struck by nine hurricanes that each caused over \$1 billion each in damage, with a collective cost of \$98 billion.

Damage Sustained by Florida from Hurricanes

In 2004, the Atlantic hurricane season proved to be one of the deadliest and costliest hurricane seasons on record. Nearly 3,000 deaths occurred, with the majority in Haiti, and \$42 billion worth of damage in the United States. There were ten storms that made landfall in North America, with nine storms hitting the United States and one hitting Canada. Of these storms, six were hurricanes upon landfall and three were major hurricanes at a category three or higher at landfall (Wikipedia contributors, 2005). Of the six hurricanes making landfall in the United States in 2004, four of them ravaged the state of Florida within a six week period. According to the Florida Office of Insurance Regulation (FIC), there was in excess of \$22 billion of insured losses from hurricanes Charley, Frances, Ivan, and Jeanne (2005). At the close of the 2004 hurricane season,

every one of Florida's 67 counties was greatly affected as indicated by the damage or destruction sustained by one of every five homes (Dickey, 2004).

Hurricane Charley, the first major hurricane to strike Florida, made landfall on August 13, 2004 at 3:45 pm EDT at Cayo Costa, approximately 20 miles north of Fort Myers, as a Category 4 storm. It later exited Florida at approximately midnight near Daytona Beach (Wikipedia contributors, 2005). As a result of Hurricane Charley, there was an estimated gross insured loss of over \$8 billion in Florida (FIC, 2005) and there were two million people reported in Florida without power immediately after landfall (Wikipedia contributors, 2005). In addition, according to NOAA (2004), 24 people died in Florida as a result of Hurricane Charley, with 792 injuries, and 1.42 million people evacuated from their homes.

Hurricane Frances struck the State of Florida only three weeks after Hurricane Charley, when it made landfall on September 5, 2004 at 1:00 am EDT as a Category 4 hurricane on the east coast of Florida between Fort Pierce and West Palm Beach in Stuart. Although Hurricane Frances proceeded to exit Florida near Tampa as a tropical storm, it then gained strength as it crossed the Gulf of Mexico and made landfall for a second time at St. Marks, located in the Florida panhandle. As a result of Hurricane Frances, there were 32 reported deaths in Florida, over six million people were without power following the storm (Wikipedia contributors, 2005), and there was in excess of \$5.5 billion in insured losses (FIC, 2005).

Hurricane Ivan was the fifth hurricane of the 2004 Atlantic season, but was the first to be classified as a Category 5 storm. It made landfall on September 16, 2004 at Gulf Shores, Alabama at 2:15 am EDT, thus greatly affecting counties in the panhandle of

Florida. As a result of Hurricane Ivan, 23 people died in Florida and there was over \$4.3 billion in insured losses (FIC, 2005). Damage in Florida was also sustained from the occurrence of two devastating tornadoes that struck Blountstown and Panama City Beach (Wikipedia contributors, 2005).

Hurricane Jeanne was the fourth hurricane to strike Florida during the 2004 season, as it made landfall on September 25 at 11:50 pm EDT at Hutchinson Island, just east of Stuart, Florida, as a Category 3 storm. Only three weeks prior, Hurricane Frances had struck Florida two miles from where Jeanne had made landfall. Jeanne continued to closely follow the path of Frances until it exited Florida from Pasco County. In the wake of Hurricane Jeanne, there were eight reported deaths, millions of Florida residents were without electricity for the third time in a month, and 23 counties affected (Wikipedia contributors, 2005). In addition, there was an estimated \$4.3 billion in insured losses (FIC, 2005).

Personal Difficulties Resulting from Hurricanes

In addition to economic losses hurricanes may cause, many people suffer from emotional stress during such disasters. For example, a lack of knowledge concerning how to prepare for a hurricane, what to do when one strikes, as well as how to recover, may leave people feeling distraught, depressed, or anxious. Even though some families and individuals may have had a disaster plan, the onslaught of hurricanes this past season eventually did take an emotional toll on many victims. Many without electricity for weeks, Florida residents found themselves without the everyday necessities, such as the ability to have clean water, meals, and a means to bathe. In addition, many residents lacked a working telephone line, resulting in isolation. As one woman's story is described, "This week, after Hurricane Jeanne took a swipe at her apartment over the

weekend, she found herself waiting again at a relief station under a relentless sun. She managed to get a bag of ice, but wondered where she might find water or a meal for her three children. Relief workers had no answers...she has tried calling the American Red Cross hot line to find a counselor, but clogged phone lines kept her from reaching anyone” (Associated Press, 2004). At some mental health centers in the southwestern area of Florida, the number of calls increased 150% in August and September as compared to last year. In addition, Florida saw the number of suicides increase by 13% since Hurricane Charley struck, as well as a rise in the number of domestic abuse cases (Associated Press, 2004). For some the recent hurricane season simply caused a disruption in routine; for many others it represents a time of fear and uncertainty.

Agricultural Loss from Hurricanes

The agricultural and allied industries in Florida sustained extensive damage during the 2004 Atlantic hurricane season, specifically from hurricanes Charley, Frances, Jeanne, and Ivan. It has been estimated that the agriculture and allied industries of Florida sustained damages of \$2.156 billion, including crop losses and program funding needs (UF/IFAS, 2005, page 1).

According to the Florida Department of Agriculture and Consumer Services, the commodities that were impacted the greatest, as estimated by damage surveys conducted immediately after the hurricanes, were nurseries (including ferns) with \$700 million in damage, citrus with \$500 million, and beef cattle with \$213 million. As a result of the hurricanes that occurred in 2004, many of the largest nursery crop production areas in Florida suffered damage ranging from “immediate damage/death to plants, loss of production for weeks to months, to damage and/or loss of greenhouses, slathouses, production areas, support structures and irrigation systems” (UF/IFAS, 2005, page 5). In

addition, ornamental plant production including landscape plants, flowering, foliage and bedding plants, cut flowers, caladium corm production, cut foliage, and sod, suffered extensive damage. However, the extent to which damage incurred depended on the crops produced, the area where they were produced, and the types of facilities that were used to produce the nursery crop. For example, trees and ornamental plants as part of field production suffered severe damage to leaves, stems, and trunks as a result of high winds. Flooding and standing water also affected caladium corm and cut foliage production in terms of damage to root systems (UF/IFAS, 2005, page 5).

The Florida citrus industry suffered extensive devastation and destruction to fruit, trees, and infrastructure, including citrus nurseries, buildings, and equipment as a result of hurricane-force winds and significant flooding. Flooding has the potential to cause many long-term problems as standing water has increased the chance of soil borne illness and insect infestation, as well as causing water damage to irrigation and drainage structures and equipment. In addition, many citrus operations suffered damage from three of the four hurricanes. Some citrus groves that were located closest to the paths of the hurricanes lost their entire crop, especially those producing grapefruit. Overall, the United States Department of Agriculture has estimated a 27% decrease in orange production during the 2004-2005 season, as compared to the previous season's production total. Furthermore, the grapefruit crop is expected to decrease 63% from last season. In addition to actual citrus fruit losses, tree damage also occurred. There was significant damage to limbs and trunks, as well as trees that were in the paths of the hurricanes being uprooted (UF/IFAS, 2005).

The third industry most affected by the 2004 hurricane season was beef (UF/IFAS, 2005, page 22). When fencing was damaged, cattle often roamed, which can result in a loss of cattle. Flooding caused cattle and calves to drown as well as severely decreasing the quality and quantity of available forages, resulting in an increased need to buy supplemental feeds and a loss in reproductive capabilities in herds. As an indirect result of hurricane damage, livestock markets had to close on a temporary basis because of facility damage, shortages in labor, flooding, and transportation issues (UF/IFAS, 2005, page 11).

Government Role in Natural Disasters

Because of the destruction and chaos caused by hurricanes to the environment of Florida and its residents, the state government established the Florida Division of Emergency Management (FDEM). At the forefront of disaster and emergency response in the state of Florida, the mission of FDEM is to “ensure that Florida is prepared to respond to emergencies, recover from them, and mitigate against their impacts” (FDEM, 2005b). In the event that such a situation or a threat of one occurs, the State Emergency Operations Center is activated according to the level of the existing threat. The response effort is conducted via the State Emergency Response Team (SERT), which consists of the Governor-appointed Emergency Coordination Officers (ECO) from state agencies and volunteer organizations. In association with the FDEM, other organizations that play a role in emergency response and support in Florida as well as nationally are Florida’s County Emergency Management agencies, Florida Emergency Preparedness Association, State agencies, Federal Emergency Management Agency (FEMA), National Emergency Management Association (NEMA), the Council of State Governments, Federal Alliance for Safe Homes, the American Red Cross, and the Salvation Army (FDEM, 2005b).

The state agencies and volunteer groups are then organized into 17 Emergency Support Functions (ESF), in order to coordinate and carry out response and recovery missions, which are common to all disasters. Emergency Support Functions provide a means in which to combine similar-functioning organizations to allow for more efficient management. Each ESF is made of at least one primary agency that then directs the efforts of supporting organizations and agencies. The primary agency is named as such due to its authorities, resources, and expertise in the particular area, such as transportation, communication, or energy. According to the Federal Emergency Management Agency (1999), a primary agency of a particular ESF has “operational responsibility for

- orchestrating the Federal agency support within the functional area for an affected state;
- providing an appropriate level of staffing for operations at FEMA Headquarters, the ROC, DFO, and DRC;
- activating and subtasking support agencies;
- managing mission assignments and coordinating tasks with support agencies, as well as appropriate state agencies;
- supporting and keeping other ESFs and organizational elements informed of ESF operational priorities and activities;
- executing contracts and procuring goods and services as needed;
- ensuring financial and property accountability for ESF activities;
- supporting planning for short- and long-term disaster operations.”

If designated as a support agency for an ESF that is activated during a disaster, that organization “has operational responsibility for

- supporting the ESF primary agency when requested by conducting operations using its authorities, cognizant expertise, capabilities, or resources;

- supporting the primary agency mission assignments;
- providing status and resource information to the primary agency;
- following established financial and property accountability procedures; and
- supporting planning for short- and long-term disaster operations” (FEMA, 1999).

Government Aid to Hurricane Victims

During and in the aftermath of the hurricanes of 2004, both the federal and state governments were quick to respond to needs of citizens. In addition, many agencies worked prior to the arrival of the hurricanes to prepare residents. According to Cole, Corbett, and McCullough (2005), the Federal Emergency Management Agency (FEMA) began to provide personnel and supplies, including water, ice, medical assistance, and emergency housing, even before the first hurricane made landfall, which would provide immediate support to disaster victims. After repeated hurricanes, FEMA also assisted in clean-up efforts, as more than 25 million cubic yards of debris were removed (Dickey, 2004). By the end of October, 2004, President Bush had secured \$12.2 billion from Congress in storm appropriations, most of which was used to simply cover FEMA’s costs for the four hurricanes (Dickey, 2004).

Response of Cooperative Extension in Natural Disasters

One organization that has been called upon to help during times of natural disasters is the Cooperative Extension Service (CES). Extension represents a partnership between the US Department of Agriculture, the University of Florida, and county governments. As an educational organization, Extension provides science-based knowledge to the public on a variety of topics, including agriculture, resource conservation, food and nutrition, child and family development, and financial literacy (IFAS, 2003). At the core of Extension are county agents. Dedicated to education and their communities, agents

strive to inform and teach local residents through seminars, workshops, media, and technology.

The grass-roots nature of Cooperative Extension represents a unique ability to aid community and state residents in times of disaster. Specifically related to natural disasters, in Florida, Cooperative Extension is designated as a support agency to the Florida Department of Agriculture and Consumer Services under ESF 17, Animal Protection. ESF 17 coordinates the response of state agencies in aiding local and volunteer organizations to provide emergency medical care, evacuation, rescue, confinement, shelter, food and water, and identification to all animals affected by a natural disaster. In addition, ESF 17 is involved in the diagnosis, prevention, and control of diseases that may pose a threat to public health (FDEM, 2000). Specifically, Cooperative Extension would serve to educate commercial and non-commercial pet and livestock owners on how to safely care for their animals during emergency situations as well as providing them with food, water, and power.

As a fusion of science and education, Cooperative Extension enables people to not only obtain such knowledge, but also to determine their own needs. As a result, county residents aid in the development of relevant educational programs. In addition, all educational information is also research-based. The mission of Extension today is comprised of diagnostics, such that people are aided in determining the problems they face, education for the future, and education for problem solving.

Extension agents typically work within a particular subject area, including agriculture, family and consumer science, 4-H and youth development, and nutrition (Texas Cooperative Extension, 2003). Agents are able to communicate unbiased,

community-related information to the public through partnerships and coalitions (Dresbach & Longo, 2001). In addition to fostering collaboration and empowering others to act, agents orchestrate change through the educational programs they establish.

According to the University of Florida Institute of Food and Agricultural Sciences, “federal and state disaster preparedness agencies view the land grant program in each state and its personnel as important links to local communities” (UF/IFAS, 1998). As a result of the grass-roots nature of programming, Extension has an innate advantage at the rapid dissemination of emergency information to individuals and communities (UF/IFAS, 1998).

In addition to providing aid to pet and livestock owners, Extension also provides Florida residents with research-based information pertaining to disaster preparation, during a disaster, and disaster recovery. Extension provides information relating to specific types disasters, such as hurricanes and fires. In terms of disaster preparation, information is available on creating a disaster supplies kit, protection of valuable records, and handling stress. During a disaster, Extension can be a valuable information source regarding safety during emergency travel and evacuation. After a natural disaster, Extension can provide information regarding emotional recovery, obtaining safe emergency food and water, and wildlife and pest issues, such as insect control (UF/IFAS, 1998).

Statement of Problem

During the 2004 hurricane season, the entire state of Florida was ravaged by four consecutive hurricanes, including Charley, Frances, Ivan, and Jeanne, beginning on September 2, 2004 and continuing for six weeks. During disaster situations, according to UF/IFAS, the faculty of the Cooperative Extension Service has a responsibility first to

their families and then to their communities as a communication link to assist state and federal recovery programs. Conversely, the Florida Cooperative Extension Service has a designated role as a support agency, as described by the Federal Disaster Management Agency. Unfortunately, there is a lack of research pertaining to the exact role of Extension during disaster situations, as opposed to serving a reactive function. As a result, there is limited information on factors affecting the role Extension plays as a front-line responder. In addition, there is limited understanding concerning the organizational and professional role of faculty during disasters, while still maintaining the ability to meet personal and familial needs.

Purpose of Study

Hurricanes can cause major havoc to the environment, people and the communities in which they live. In addition, because of the growing number of pets, attention must be given to the care and shelter of small animals, horses, and other livestock during emergencies. In regard to natural disasters, response time can be critical. As such, each agency involved in hurricane support must understand their assignments and the resources available to them. However, those who are front-line responders also may be personally affected by the hurricanes. Extension county professionals may face the need to aid Extension in its role as a front-line responder, while dealing with the effects of the hurricanes at their own homes and with their families. During a hurricane, Extension faculty may have to report to work in a professional setting in order to be a source of information regarding disaster recovery while they themselves do not have electricity at their homes in order to bathe or keep food.

The purpose of this study was to determine the readiness on the part of UF/IFAS Extension faculty to serve as front-line responders in the preparation and recovery from

the 2004 hurricane season. In addition, the study was conducted to determine how well agents were prepared to deal with professional demands, job expectations and clientele demands, while coping with personal hardships as a result of the hurricanes. A third purpose was to discern the availability of a crisis management plan to guide Extension faculty on internal communications, roles, and responsibilities. The objectives of the study were as follows:

1. Determine how well Cooperative Extension Service carried out its responsibilities as a front-line responder, as indicated by the following three subobjectives:
 - a. Determine the readiness of Extension faculty to serve as front-line responders during the 2004 hurricane season, in terms of preparation, performance, and subsequent evaluation or learning
 - b. Determine the personal hardships of Extension faculty during the 2004 hurricane season and the role that Extension played to reduce these hardships
 - c. Determine the professional hardships of Extension faculty during the 2004 hurricane season and the role that Extension played to reduce these hardships
2. Determine whether or not needs exist for professional development, training, curriculum, and resources in terms of future natural disasters
3. Determine the availability of a crisis management plan to guide Extension faculty on internal communications, roles, and responsibilities

Limitations

The methodology presents limitations to this study. For example, the data instrument was a web-based survey sent via email to county Extension faculty and District Extension Directors with viable email addresses as of October 2004. As a result of damage sustained by Florida during this time, some people did not have access to computers and were without electricity. As a result, response may be limited.

In addition, because of the traumatic nature of the 2004 hurricane season, faculty may have had a particularly difficult time dealing with the personal and professional repercussions of the event. Also, faculty may have been continuing to deal with the aftermath of the hurricanes at the time they were surveyed. As a result, those surveyed may not have been willing to fully describe their experiences in the survey. There may have been delayed effects, as well, as faculty were not aware of the full extent of damage from the hurricanes.

Operational Definitions

The following terms were operationally defined as follows:

- **County Division of Emergency Management:** local government organization created to discharge emergency management responsibilities and functions of the county (UF/IFAS, 1998).
- **County Emergency Operations Center (EOC):** the county facility that serves as a central location for the coordination and control of all emergency preparedness and response activities (UF/IFAS, 1998).
- **Crisis:** an event that is an unpredictable, major threat that can have a negative effect on the organization, industry, or stakeholders if handled improperly (Coombs, 1999, p.2).
- **Crisis management:** a set of factors designed to combat crises and lessen the actual damage inflicted by a crisis. Crisis management seeks to prevent or lessen the negative outcomes of a crisis and thereby protect the organization, stakeholders, and/or industry from damage (Coombs, 1999, p. 4).
- **Crisis Management Plan (CMP):** a communication document for an organization to help reduce response time by precollecting needed background information, preidentifying responsibilities, and assigning certain actions to specific individuals that must be taken when a crisis hits (Coombs, 1999, p. 79).
- **Crisis Management Team (CMT):** a cross-functional group of people in the organization who have been designed to handle any crises. Typically, the CMT is responsible for (a) creating the CMP, enacting the CMP, and (c) dealing with any problems not covered in the CMP (Coombs, 1999, p. 63).
- ***The Disaster Handbook:*** a publication by UF/IFAS to help Extension personnel assist their communities in times of disaster (UF/IFAS, 1998). It provides

materials related to disaster preparedness, surviving disaster situations, and recovering from them.

- **Emergency Support Function (ESF):** Emergency Support Functions provide a means in which to combine similar-functioning organizations to allow for more efficient management. Each ESF is made of at least one primary agency that then directs the efforts of supporting organizations and agencies. (FDEM, 2005a).
- **Federal Emergency Management Agency (FEMA):** following the declaration of a disaster area, FEMA reacts by providing immediate aid and relief to the affected by a disaster, natural or man-made (UF/IFAS, 1998).
- **Florida Cooperative Extension Service (FCES):** Established by the Smith-Lever Act of 1914, it is the third arm of the land grant system, in conjunction with teaching and research. It is a partnership between UF/IFAS, United States Department of Agriculture, and county governments in Florida to provide scientific knowledge and expertise to the public through nonresident educational programs (UF/IFAS, 2003).
- **Florida Department of Emergency Management (FDEM):** a state agency, in coordination with various state and federal agencies, that works to ensure that the Florida population is prepared to respond to emergencies, recover from them, and lessen their effects (Florida Division of Emergency Management, 2005b).
- **Front-Line Responder:** local responders, government agencies, and private organizations who respond as soon as a disaster is detected and begins to threaten an area. Response involves mobilizing and positioning emergency equipment; getting people out of danger; providing needed food, water, shelter and medical service; and bringing damaged services and systems back on line (UF/IFAS, 1998).
- **Personal needs:** basic physical and emotional needs of front-line responders, including shelter, food, clothing, and emotional support, during times of crises.
- **Professional needs:** needs of Extension faculty so they are able to meet their job expectations.
- **Saffir/Simpson Hurricane Scale:** the system used by the National Weather Service to give public safety officials a means to evaluate the strength of a hurricane based upon potential wind and storm surge damage. Hurricanes are categorized from a Category 1, with maximum sustained winds of at least 74 mph, to a Category 5 hurricane, with maximum sustained winds of 155 mph or greater (UF/IFAS, 1998).
- **University of Florida Institute of Food and Agricultural Sciences (UF/IFAS):** The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is a federal, state, and local government partnership dedicated to develop knowledge in agriculture, human and natural resources, and the life sciences and to

make that knowledge accessible to sustain and enhance the quality of human life (UF/IFAS, 2004).

CHAPTER 2 LITERATURE REVIEW

The purpose of this study was to determine the readiness on the part of UF/IFAS Extension faculty to serve as front-line responders in the preparation and recovery from the 2004 hurricane season. In addition, the study was conducted to determine how well agents were prepared to deal with professional demands, job expectations and clientele demands, while coping with personal hardships as a result of the hurricanes. A third purpose was to examine discern the availability of a crisis management plan to guide Extension faculty on internal, communications, roles, and responsibilities.

Introduction

Although the Federal Emergency Management Agency (FEMA) and Florida Division of Emergency Management (FDEM) exist to act as front-line responders, the Florida Cooperative Extension Service (FCES) occupies a unique niche as hurricanes and other crises threaten the residents of Florida. As a result of its grass-roots origin, Extension has the ability to quickly and efficiently distribute reliable emergency information to the public (UF/IFAS, 1998). Therefore, it is vital that Florida Cooperative Extension reflect upon its response efforts to the recent hurricane crisis so as to improve its ability to prepare, respond, and assist in recovery for future natural disasters. In addition to its efforts focusing on its work with the public and clientele, this study will provide more information that will help future Extension response to the professional and personal needs of its faculty as they serve as front-line responders.

Definition of Crisis

Although many definitions of the term “crisis” exist, a widely accepted definition was created by the Institute for Crisis Management, which states that a crisis is “a significant business disruption which results in extensive news media coverage and public scrutiny” (as cited in Irvine & Millar, 1996). In addition, according to Fearn-Banks, a crisis is a “major occurrence with a potentially negative outcome affecting an organization, company, or industry, as well as its publics, products, services, or good name” (as cited in Coombs, 1999, p.2). Although there is no one single definition of crisis, Coombs (1999) provides a working definition of a crisis “as an event that is an unpredictable, major threat that can have a negative effect on the organization, industry, or stakeholders if handled improperly” (p. 2). Despite differently worded definitions, several similarities emerge that describe a crisis. Irvine and Millar (1996) stated that these include

- A crisis occurs very suddenly.
- A quick reaction is required when a crisis does arise.
- A crisis interferes or interrupts the performance and routine of an organization.
- A crisis causes stress and uncertainty.
- A crisis causes the reputation and assets of the organization to become threatened.
- A crisis increases in intensity.
- A crisis causes people outside to become critical of the organization.
- A crisis leaves the organization permanently altered.

In addition, simply because a crisis is unpredictable does not mean that it is unexpected. An organization can prepare for a crisis in advance, but they may not know when it will occur. The term major, when used to describe a crisis, refers to the fact that a crisis has the ability to disrupt an entire organization, whereas a minor incident simply affects one small part of the routine in an organization (Coombs, 1999, p.3). A crisis is characterized as a threat because it has the potential to result in negative outcomes. Thus,

the damage created by a crisis can include financial loss, injuries or deaths to stakeholders, property damage, tarnished reputations, and environmental harm (Coombs, 1999). Because a single crisis has the ability to cause negative outcomes for entire organizations, its stakeholders, or the industry, crisis management was introduced as a means to reduce the threats posed by crises through guidelines for the proper handling of crises (Coombs, 1999).

Crisis Management

Although organizational crisis can not be eradicated, it can be dealt with effectively when it does occur. This is accomplished through crisis management. Coombs (1999) concluded that crisis management:

represents a set of factors designed to combat crises and lessen the actual damage inflicted by a crisis. Put another way, crisis management seeks to prevent or lessen the negative outcomes of a crisis and thereby protect the organization, stakeholders, and/or industry from damage. (p. 4)

In addition, regardless of how it is defined, crisis management necessitates that strategic action be taken in order to decrease negative outcomes and create solutions to problems.

As a result, crisis management is a continuous and ongoing process (Burnett, 1998, p. 476). According to Rosenthal and Kouzmin (1996):

Crisis management was the scholarly epithet for a full spectrum of contingencies in the public and private sectors: natural disasters and new scarcities, the old and new epidemics, nuclear and post-nuclear accidents, wars, revolts, riots, socio-political turmoil, terrorism, and gunman's craze; as well as dramatic market shifts, conspicuous product failures, and product sabotage, information and communication breakdowns, boycotts and embargoes. (p. 119)

Phases of Crisis Management

Crisis management is made of up of four different components, including prevention, preparation, performance, and learning (Coombs, 1999, p.4). These crisis management phases represent a cycle. As a result, they must be used in conjunction with

one another in order to deal with a crisis effectively. For example, “if prevention fails, preparation is required for optimal performance. Learning is derived from performance and informs both the prevention of and preparation for a crisis. In turn, improving preparation should improve performance. Crisis management is a process of preventing, preparing for, performing, and learning from crises” (Coombs, 1999, p. 5).

Prevention includes activities that can avoid the crisis all together. As a result, these actions are rarely seen by those beyond the organization. Preparation involves the crisis management plan (CMP), forecasting when and where a crisis may occur due to vulnerabilities, selecting and training a crisis management team and spokesperson to respond to crises, creating a crisis portfolio, and improving the crisis communication system (Coombs, 1999, p. 4).

As a result of the preparation phase of crisis management, performance can be tested through the use of a simulated or real crisis. The performance phase is conducted in order to determine if the crisis management team, spokespersons, the crisis management plan, and communication system are adequate to deal with the rise of an actual crisis. It is important that the components of the performance stage are sound, as these are the steps that become publicly scrutinized through the media in the event of a real crisis (Coombs, 1999, p. 4).

The fourth aspect of crisis management is learning. It is during the learning phase that an organization evaluates those actions taken during the performance phase in response to an actual or invented crisis. By evaluating the performance during the crisis management, the organization can determine strengths and weaknesses in its plan. In addition, this phase contributes to the development of an institutional memory, by

allowing the organization to expand its scope of crises and arsenal of crises response strategies (Coombs, 1999, p. 4).

Crisis Management Models

Over the past two decades, since the occurrence of the Tylenol tampering case of 1982, several prominent stage models and strategies of crisis management have emerged (Seeger, Sellnow, & Ulmer, 2003). The four most influential models, as indicated by frequency of references in the research literature are the Fink's (1986) four-staged model of a crisis life cycle, Mitroff's (2001) five-stage model, Burnett's (1998) crisis classification matrix, and Coombs' (1999) basic three-staged model.

Four-Stage Model

Fink's (1986, p. 20) four-stage model characterizes a crisis through four distinct stages, including (1) prodromal crisis stage, (2) acute crisis stage, (3) chronic crisis stage, and (4) crisis resolution stage. The prodromal stage can be defined as the warning stage of a crisis, which represents a time when signals must be recognized before the onset of the actual crisis. As a result, this stage is very important because it is easier to manage a crisis in this stage than later on (Fink, 1986, p. 21). Once a crisis has evolved from the prodromal crisis stage to the acute crisis stage, damage has already occurred to the organization. At the acute crisis stage, the crisis itself cannot be controlled, but the organization does have some control over where, how and when the crisis occurs (Fink, 1986, p. 22). The third or chronic crisis stage encompasses the clean up, recovery, and organizational evaluation that occurs following a crisis. It presents an opportunity for the organization to determine positive and negative aspects of its crisis management plan, thus improving its crisis management planning (Fink, 1986, p. 24). The final stage, and

goal of Fink's crisis model, is crisis resolution. It is at this point that the organization returns to its regular routine (Fink, 1986, p.25).

Five-Stage Model

The second influential staged-approach to crisis management was developed by Mitroff (2001). Mitroff's best practice model for crisis management describes five stages, including types/risks, mechanisms, systems, stakeholders, and scenarios, which have to be managed before, during, and after a major crisis (Mitroff, 2001, p. 30). The types and risks of crises describe the six categories that a crisis will fall into including economic, informational, human resource, reputational, psychopathic acts, and natural disasters. By categorizing types of crises, it allows the organization to prepare for each type. The second stage includes the "various CM [crisis management] mechanisms for anticipating, sensing, reacting to, containing, learning from, and redesigning effective organizational procedures for handling major crises" (Mitroff, 2001, p.40). This step illustrates the fact that a systematic approach to crisis management is needed in order for it to be effective.

The third stage of Mitroff's model includes the systems that govern most organizations. For example, every complex organization is comprised of technology, organizational structure, human factors, culture, and top management psychology. The fourth stage of the model are the stakeholders, which are those who are the internal and external parties of a organization, and "who have to cooperate, share crises plans, and participate in training and the development of organizational capabilities in order to respond to a range of crises" (Mitroff, 2001, p. 48). Stakeholders may play a key role during a crisis to aid organizational functioning. The fifth stage of the model includes

scenarios. Scenarios allow an organization to test its crisis management policy through created crisis situations (Mitroff, 2001).

Crisis Classification Matrix

According to Burnett (1998), every crisis can be characterized by time pressure, control issues, threat level concerns, and response option constraints, which are all inhibiting characteristics of a crisis. Time pressure refers to the fact that a crisis occurs and then requires immediate attention. During a time of crisis, an organization has a very low degree of control on external factors. In addition, crises create concern over threat-levels, especially to strategy formulation, evaluation, and implementation. Response-option constraints refer to that fact that there are limited ways for an organization to respond to a crisis (Burnett, 1998, p. 480).

Utilizing these characteristics, crisis situations can then be classified into a 16-cell matrix. For example, a crisis would be classified as a Level 4 situation if the time pressure was intense, the degree of control low, the threat-level is high, and response-options are limited.

Three-Stage Model

Although it is not clear who originally created the three-stage model that illustrates the crisis life cycle, it is largely elaborated upon by Coombs (1999). It subdivides crisis management into the three stages of pre-crisis, crisis, and post-crisis (Coombs, 1999, p.13). Generally, the pre-crisis stage includes crisis prevention and preparation, which were introduced earlier as phases of crisis management, as well as signal detection. The crisis stage includes crisis recognition, containment, and recovery. Lastly, the post-crisis stage includes crisis learning, which is the last stage of crisis management, and resolution (Coombs, 1999, p. 13). This three-stage model will provide the framework for the

remaining review of literature as it has the ability to incorporate other models of crisis management into a more condensed description. The study was guided by the theory of crisis management, as presented by Coombs (1999), through the phases of prevention, preparation, performance, and learning.

Pre-Crisis Stage of Crisis Management

The pre-crisis stage is very important to crisis management because it includes the proactive activities that organizations must take in order to prevent the occurrence of a crisis. By paying attention to warning signs, an organization can avoid situations that have the potential to develop into a crisis (Coombs, 1999, p.17). The pre-crisis stage involves three substages or phases, including signal detection, crisis prevention, and crisis preparation (Coombs, 1999, p.17).

Signal Detection

Signal detection requires crisis managers to identify warning signs that arise from a situation that has the potential to develop into a crisis. This process consists of three steps, which include identifying sources of information to scan, collecting the information to be scanned, and evaluation of the information to determine crisis potential. In order to detect these crisis signals, crisis management must also incorporate a system to scan (the active search for information), and monitor for crisis warning signals. Scanning a variety of information sources from both the external and internal environment is conducted by crisis managers to detect warning signals from different types of potential crises. After warning signs are detected through scanning, monitoring takes place in order to pay careful attention to those with the most potential of becoming crises (Coombs, 1999, p 17).

The scanning system that an organization employs as part of the signal detection process consists of three resources including issues management, risk assessment, and stakeholder relations. According to Coombs (1999), an “issue is a type of problem whose resolution can affect the organization.” As a result, issues management is a means in which to mitigate the negative effects that an issue may have on an organization by influencing how the issue develops and its subsequent resolution (Coombs, 1999, p.18). As part of scanning, risk assessment identifies risk factors or weaknesses. By doing so, it can be determined whether or not an internal weakness could develop into a crisis. Stakeholder relations refer to the relationship between the organization and its stakeholders, which are “any person or group that has an interest, right, claim, or ownership in an organization” (Coombs, 1999, p. 20).

When scanning for potential crises, there are sources that need to be scanned that are specific to issues management, risk assessment, and stakeholder relationships. In issues management, for example, environmental scanning is very important to identify changes, trends, events, and issues pertaining to social, political, and health issues. Examples of traditional sources that would be scanned in issues management are news media, trade journals, or public opinion polls. Online sources include web pages and online newspapers, magazines, and trade publications.

Risk assessment sources have the ability to provide information about the weaknesses of the organization that could develop into crises. These include environmental crisis exposure and natural disaster exposure, which identifies what a natural disaster may do to an organization. In terms of Extension, they are an organization that responds to the effects of natural disasters. For instance, a natural

disaster would affect not only the communities in which Extension serves, but also the organization's ability to respond and provide assistance. Stakeholder relationship sources include stakeholder complaints or inquiries and stakeholder resolutions, which are representative of the values and attitudes of those who have a vested interest in the organization as a result of social or financial concerns (Coombs, 1999, p. 28).

Once sources have been identified, the information must be collected. Generally, this is conducted by content analysis, interviews, surveys, focus groups, and informal contacts. However, the information collected lacks meaning and applicability without analysis, which allows crisis managers to determine if the information does actually suggest that the possibility for a crisis to exist. In terms of issue evaluation, criteria used are likelihood and impact, where likelihood is "the probability of an issue gaining momentum," and impact is "how strongly the issue can affect either profits or operations" (Coombs, 1999, p. 32). In risk evaluation, impact and likelihood are again used to determine if a risk has the potential to become an actual crisis, yet they are operationally defined differently. Likelihood is "the probability that the risk can or will become an event," while impact is "how much the event might affect the organization" (Coombs, 1999, p. 33). Impact includes disruption to routines of the organization and the potential damage that can occur.

Potential crises as a result of stakeholder relationships are evaluated based upon power, legitimacy, and willingness. Stakeholder power refers to the ability of the stakeholder to change the operations or routine of the organization, including getting them to do something they normally would not. A stakeholder threat is deemed legitimate when "actions are considered desirable, proper, or appropriate according to

some system” (Coombs, 1999, p. 34). Willingness is also used to evaluate a stakeholder’s threat because a problem must be important to the stakeholder (Coombs, 1999, p. 35).

Crisis Prevention

The crisis prevention stage is when the organization considers the warning signs evaluated in the signal detection stage and then tries to restrict the arrival of the crisis (Coombs, 1999, p. 39). The goal of this stage is to “defuse the crisis by attending to the warning signs and risks” (Coombs, 1999, p. 39). Although some crises can not be entirely prevented, the subsequent damages they produce can be reduced. For instance, “even with hurricanes, whose paths cannot yet be precisely predicted, warning for regions at high risk is generally available hours or even days ahead” (Johnston & Stepanovich, 2001, p. 1246).

The two parts of the crisis prevention system are change and monitoring. Change refers to making alterations in order to eliminate or reduce the probability that a warning sign will become a crisis. In addition, monitoring refers to assessing the changes that are made and it allows the organization to determine if the changes were effective in reducing the chances that the crisis will occur. In regards to issues management, the organization attempts to influence how the issue is resolved, specifically, to have the issue end up to not be a crisis. This can also include changing the organization itself, such as by improving or correcting an aspect of the organization (Coombs, 1999, p.41).

Crisis prevention with regards to risk management, deals with attempting to reduce the risks faced by an organization. However, because not all risks can be completely avoided, risk management strategies are implemented according to cost and technical factors. For example, the costs of the risk, including death, injuries, or litigation, is

compared to the cost of risk reduction, such as work needed to prevent the risk. No action may be taken if the cost to reduce the risk is greater than the costs resulting from the risk. The second factor incorporates technical aspects of risk management, such as whether or not it is possible to eliminate or reduce the risk (Coombs, 1999, p. 43). “Risk management becomes crisis management when risk aversion (the avoidance or reduction of risk) is possible” (Coombs, 1999, p. 43). However, it depends on the nature of the actual risk in order to determine what actions can be taken by the organization to implement a risk aversion strategy.

Relationship building also plays a part in crisis prevention. Although the relationships between an organization and its stakeholders occur without provocation, it is the quality of those relationships that are important in crisis prevention. As a result, three common elements of favorable organization-stakeholder relationships emerge, including staying close, credibility, and meeting expectations (Coombs, 1999, p. 45). By having a close relationship between the organization and its stakeholders, it allows for better understanding on the part of both participants. It aids signal detection by allowing the organization to identify and prevent problems early on (Coombs, 1999, p. 45).

Organizational credibility is defined as “the receiver’s attitude toward the communicator. For crisis management, the organization is the communicator and the stakeholders are the receivers” (Coombs, 1999, p. 46). Credibility is composed of expertise, which is the organization’s knowledge about the subject, and trustworthiness, which refers to the organization’s concern for the stakeholders (Coombs, 1999, p. 46). Credibility plays an important role in crisis management, as the literature suggests that an organization must establish control during a crisis situation as well as show consideration

for the stakeholders during this time. In this context, control refers to the organization having complete and accurate knowledge and information about the crisis (Coombs, 1999, p. 47). Credibility on the part of the organization allows the stakeholders to believe and then accept what the organization has stated as the crisis. Favorable relationship building between the organization and stakeholders is dependent upon the meeting of expectations. Primarily, this indicates that an organization is considered legitimate if it conforms to the stakeholder expectations (Coombs, 1999, p. 50).

The combination of staying close, organizational credibility, and meeting stakeholder expectations results in the formation of the organization's reputation. "An organization's reputation is the product of stakeholders' perceptions of what it says and does" (Coombs, 1999, p. 51). For example, when an organization remains close to its stakeholders, mutual understanding and respect develop, thus creating a favorable organizational reputation. In addition, when the organization fulfills the expectations of the stakeholders, this indicates to the stakeholders that the organization values their concerns and will address them. Lastly, a credible organization depicts an expert and trustworthy image, both of which help to strengthen the relationship between the organization and stakeholder (Coombs, 1999, p. 51).

Crisis Preparation

Although it is best to prevent a crisis, many are inevitable, such as natural disasters. Rather, an organization can only prepare for the arrival of the crisis and not fall victim to the idea that their preventative measures will protect the organization from the effects of the crisis. In order to prepare for a crisis, an organization must address certain aspects, including diagnosing vulnerabilities, assessing crisis types, selecting and training the crisis team, selecting and training the spokesperson, developing the crisis management

plan, and reviewing the communication system (Coombs, 1999, p. 59). Crisis preparation is the final substage of the pre-crisis stage of crisis management.

Diagnosing Crisis Vulnerabilities

Every organization has certain crisis vulnerabilities that arise as a result of the organization's industry, size, location, size, operations, personnel, and risk factors (Coombs, 1999, p. 59). An organization must identify the crises that it is most prone to encounter. Organizational vulnerability is assessed according to the probability that a certain type of crisis will occur and the severity of the damage it may cause (Coombs, 1999, p. 60).

Crisis Types

Because organizations are often involved in many different arenas and, they are faced with differing environmental factors and many different crises, they require the use of a range of crisis strategies and crisis management plans. "Naming and classifying a crisis is important to addressing the uncertainty and confusion regarding causes and responsibility, particularly during the initial moments of the event" (Seeger, Sellnow, & Ulmer, 2003, p. 45). In addition, by identifying a crisis by type allows the proper agencies with specific expertise to become involved, such as the Center for Disease Control (CDC) or Federal Emergency Management Agency (FEMA) (Seeger, Sellnow, & Ulmer, 2003, p. 46). Crises often possess similar characteristics, and as a result, are grouped according to type. An organization should organize its own potential crises according to the types provided and then select at least one crisis from each type based upon vulnerability.

The crisis management plan will vary according to each selected crisis (Coombs, 1999, p. 62). Coombs (1999) synthesized a collective list, which included

- **“Natural disasters:** when an organization is damaged as a result of the weather or ‘acts of God.’ Sample natural disasters include earthquakes, tornadoes, floods, hurricanes, and bad storms.
- **Malevolence:** when some outside actor or opponent employs extreme tactic to express anger toward the organization or to force the organization to change. Sample malevolence crises include product tampering, kidnapping, malicious rumors, terrorism, and espionage.
- **Technical breakdowns:** when the technology used or supplied by the organization fails or breaks down. Sample technical breakdowns include industrial accidents, software failures, and product recalls that result from technical problems.
- **Human breakdowns:** when human error causes disruptions. Sample human breakdowns include industrial accidents and product recalls caused by human error.
- **Challenges:** when the organization is confronted by discontented stakeholders. The stakeholders challenge the organization because they believe it is operating in an inappropriate manner and does not meet their expectations. Sample confrontations include boycotts, strikes, lawsuits, government penalties, and protests.
- **Megadamage:** when an accident creates significant environmental damage. Sample megadamage includes oil spills and radioactive contamination. Megadamage is caused by either technical or human breakdowns or both.
- **Organizational misdeeds:** when management takes actions it knows will harm or place stakeholders at risk for harm without adequate precautions. These acts serve to discredit or disgrace the organization in some way. Sample organization misdeeds include favoring short-term economic gain over social values, deliberate deception of stakeholders, and amoral or illegal acts by management.
- **Workplace violence:** when an employee or former employee commits violence against other employees on organizational grounds. Sample workplace violence includes killing or injuring coworkers.
- **Rumors:** when false information is spread about an organization or its products. The false information hurts the organization’s reputation by putting the organization in an unfavorable light. Sample rumors include linking the organization to radical groups or stories that their products are contaminated” (Coombs, 1999, p. 61).

When a crisis is brought about by natural disasters, although the organization itself is not directly responsible for the crisis, they must be prepared and effectively manage such situations. In addition, natural disasters are a unique type of crisis, as the crisis situation that results can evolve into a different type. For example, the crisis situation faced by a community may have initially begun as a result of a hurricane, but it can eventually become an economic crisis or cause transportation accidents (Seeger, Sellnow, & Ulmer, 2003, p. 63). In addition, natural disasters are unique in that “the suddenness and magnitude of the occurrence renders the areas affected by natural disasters unable to respond effectively to the emergency because the devastation exceeds the capacity of the area’s resources” (Galambos, 2005, p. 83). According to Noji (as cited in Galambos, 2005, p. 83), the objectives in natural disaster management should be to

- determine the needs of the population that was affected by the disaster,
- provide available resources to fulfill the determined needs of the population,
- prevent additional negative health issues by executing disease control strategies,
- evaluate how effective the disaster relief programs were, as well as improving plans for future disasters.

Crisis Management Teams

The crisis management team (CMT) is a group within an organization who handle crises that affect the organization. The role of the CMT is to create the crisis management plan (CMP), carry out the CMP, and deal with issues not addressed by the CMP (Coombs, 1999, p. 63). “To develop the crisis plan, the crisis team needs the information about different crisis types and all information about potential crises (scanning) and actions being taken to prevent crises (prevention)” (Coombs, 1999, p. 63). Carrying out the CMP includes putting it into action during simulated as well as actual crisis situations.

Four critical tasks carried out by the crisis team are group decision making, functioning as a team, enacting the crisis management plan, and listening in order to collect information (Coombs, 1999, p. 64). The ability to make group decisions is crucial to the success of the implementation of the crisis strategy, as all of the primary responsibilities of the CMT refer to this task. In terms of enacting the CMP, it is beneficial to have appointed team members according to their subject-matter knowledge that is important during a crisis, including media relations or legal issues. As a result of the specific tasks carried out by the CMT, a profile of a successful crisis team member would be someone who was “low in communication apprehension in groups, high in cooperation, high in ambiguity tolerance, moderate in argumentativeness, and well equipped to handle stress” (Coombs, 1999, p. 69). An undesirable team member would have the opposite of these stated characteristics. In addition, it is important for the crisis management team to be comprised of people with “different specialties, [which] brings together broader perspectives, enhancing the team’s information-processing capacity” (Seeger, Sellnow, & Ulmer, 2003, p. 185).

In addition, it is critical that team members have specific knowledge and experience in certain areas, as well as in general crisis management (Coombs, 1999, p. 69). It is important the team represent a cross-functional unit. For example, in terms of general crisis management skills, it would be important for each team member to be knowledgeable in working as a team, applying the crisis management plan to crises, making group decisions, and listening to others (Coombs, 1999, p. 65). Knowledge in such areas then translates to a set of skills, including the ability to work in cooperation, follow directions, and speak in groups. Following the possession of these skills are a set

of traits, including a cooperative predisposition, the ability to handle stress, ambiguity tolerance, argumentativeness, and a willingness to speak in groups (Coombs, 1999, p. 65). As a result, it is important that front-line responders possess certain traits, skills, and abilities, such as the ability to cope with stress, in order to deal with crisis situations. In addition, experience and expertise in dealing with crises become an important part of being selected to be a front-line responder.

Another important member of the crisis team is the spokesperson. “The primary responsibility of the spokesperson is to manage the accuracy and consistency of the messages coming from the organization” (Coombs, 1999, p. 71). Whether an organization has one or several spokespersons, there are certain qualifications that he or she must possess. For instance, preparation on the part of the spokesperson is imperative in order to provide the public and media with appropriate responses. In addition, the spokesperson must be able to operate efficiently and effectively while under stress, as crisis situations are unto themselves very stressful. Although part of the crisis team, the spokesperson must also have training in working with the media, such as having practice in dealing with media questions and presenting information in a fashion that is attractive for target audiences (Coombs, 1999, p. 76).

Crisis Management Plan

Although the crisis situations that organizations may face can vary greatly, it is possible for an organization to create a crisis plan, including a crisis communication plan. This will allow the organization to lessen potentially negative consequences and reduce uncertainties in the event of a crisis (Whiting, Tucker, & Whaley, 2004, p. 10). This idea also applies to communities, such that communities that create disaster plans before the onset of a disaster will be better able to deal with the disaster as it develops (Galambos,

2005, p. 84). In addition, “communities that develop a strong disaster plan, conduct rapid assessments, procure resources, and provide assistance in coping with the aftermath will have a more effective approach to deal with disasters” (Galambos, 2005, p. 84). Because crisis situations require a quick response time, the crisis management plan (CMP) is crucial, as it contains previously collected background information, responsibilities of crisis team members, and a blueprint for actions that must be taken by certain members once the crisis does occur (Coombs, 1999, p. 79). Overall, the CMP provides the organization with a means in which to respond efficiently and effectively to the crisis at hand, as well as saving lives and decreasing risk (Coombs, 1999, p.79). Essentially, it is a crisis communication plan for the organization. According to Coombs (1999), the crisis management plan should consist of the following sections

- **Cover page**
- **Introduction**
- **Acknowledgments**
- **Rehearsal dates:** These are dates in which the crisis management plan was practiced.
- **Crisis management team:** This section identifies who is in charge of the team, as well as how to contact them, how to begin putting the plan into action, and when the plan should be activated, such as what denotes a crisis.
- **CMT contact sheet:** This section lists all the members of the crisis management team, their complete contact information, their areas of knowledge, and any outside people that may be needed, such those involved in emergency or insurance response.
- **Crisis risk assessment:** This section identifies all the possible crises that an organization may encounter, determines the probability that each will occur, and identifies damage that will ensue.
- **Incident report:** In this section, the actions taken during a crisis by the CMT are recorded, which is to be used during the evaluation phase.

- **Proprietary information:** Although it is important for crisis managers to fully disclose all information to the organizational stakeholders, some information must be kept confidential until it is reviewed by the head of the organization or legal council.
- **CMT strategy worksheet:** This section relates to crisis communication, such that the crisis manager must record what message was sent, what audience it was sent to, and the goal of the communication or message.
- **Secondary contact sheet:** This section identifies additional stakeholders who may need to be contacted in the event of a crisis, as they will be able to provide information that the organization needs.
- **Stakeholder contact worksheet:** Because different stakeholders, including the media, will contact the organization during a crisis, this section deals with the procedures to be taken when a call is received. For example, it dictated who contacted the organization, the information requested, and the organizational response.
- **Business resumption plan:** Because an organization may suffer damage to facilities or equipment during a crisis, this section details procedures to follow if this does occur, so that the organization can resume operation.
- **Crisis control center:** This section deals with where team members must meet in the event of a crisis.
- **Postcrisis evaluation:** After a crisis is over, this section provides the team with a means in which to evaluate their effort during the crisis, primarily focusing on the communication efforts. In addition, it provides an opportunity to correct weaknesses of the plan as well as maintain its strengths.

Although the crisis management plan is an important part of the organization's overall response effort, it does not mean that the organization is secure during a time of crisis. Rather, it represents a general guideline and must be able to be adapted to the individual circumstances that the team will encounter. In addition, the crisis management plan must be adaptive to other factors, such as personnel changes, and, as a result, must be able to be updated on a regular basis. Because the CMP is action-oriented, it is not a document meant to go unused. Rather, it must be acted out in simulated crisis situations, so as to enable the team to detect weaknesses that have to be addressed before an actual

crisis occurs and to give the team ample time to practice procedures (Coombs, 1999, p. 83). Furthermore, a crisis management plan will not fulfill the role to mitigate the effects of a crisis if it does not represent the philosophies, values, attitudes, assumptions, and norms of the organization. As a result, open communication within the organization is critical for the crisis management plan to succeed (Penrose, 2000, p 161).

Incidentally, in a study conducted to determine the crisis communication readiness at land-grant universities, it was found that “more than one third (36.4%) of the respondents indicated a crisis plan was in place for extension, while less than one fourth said that a plan was in place for either their experiment station (22.7%) or academic or teaching programs (18.2%)” (Whiting, Tucker, & Whaley, 2003, p. 14). As a result, there is a lack of planning on the part of Extension organizations for future crises. In addition, less than half said that the plan had been implemented once. As indicated by Coombs (1999) there is a need in organizations for practice in implementing the plan in real and simulated crisis situations. Furthermore, the study showed a “significant number of respondents perceive they are not responsible for communication policy formation or administrative decision-making, or they are uncertain about their roles” (Whiting, Tucker, and Whaley, 2003, p. 16). When developing a crisis management plan, a significant part is determining who the members are and the roles of each person in the crisis team (Coombs, 1999). Lastly, there exists a need in general for a crisis communication plan at each land-grant university, as evident by the fact that nine percent of the respondents were unaware of extension plans (Whiting, Tucker, & Whaley, 2003, p. 16).

Crisis Preparation and *The Disaster Handbook*

A main resource for UF/IFAS Extension faculty during times of crises, especially natural disasters, is *The Disaster Handbook* (UF/IFAS, 1998). This publication is part of the Prevention and Preparedness Design Team, State Major Program (SMP) 124 of the Florida Cooperative Extension Service (UF/IFAS, no date). SMP 124 is responsible for delivering information and training to the population of Florida on agricultural safety and disaster preparedness and recovery. The primary purpose of *The Disaster Handbook* “is to help Extension personnel assist their communities in times of disaster” (UF/IFAS, 1998).

A significant portion of this document is dedicated to crisis preparation. The crisis preparation section includes

- definitions of severe weather terms,
- finding information in an emergency,
- disaster supplies kit,
- detecting hazards in the home,
- protecting valuable records,
- handling stress,
- disaster planning for the elderly and disabled,
- emergency plans for small animals,
- state animal disaster plan,
- electrical outages on farms,
- electric generators,
- auxiliary units for greenhouses,
- emergency management guide for business and industry (UF/IFAS, 1998).

The last section, emergency management for business and industry, created by FEMA, does correlate to crisis management. This section focuses upon steps in the planning process, emergency management considerations, hazard-specific information, and information sources. Steps in the planning process, including establishing a planning team, analyzing capabilities and hazards, developing a plan, and implementing the plan,

which includes evaluation, do correspond to several aspects of Coombs' crisis management model.

Crisis Stage of Crisis Management

The actual crisis event represents the second stage in Coombs' three-stage approach to crisis management, which follows the pre-crisis stage. The crisis stage actually begins when it is initiated by an event and ends when the crisis is resolved. The three substages of a crisis are crisis recognition, crisis containment, and business resumption (Coombs, 1999, p. 16).

Important to the crisis stage is the crisis trigger event. This event immediately precludes the recognition of the situation as a crisis. "A crisis trigger event is usually dramatic in occurrence, such as a consumer being harmed by a product failure... In other instances, the trigger event is a dramatic disruption of operations..." (Seeger, Sellnow, & Ulmer, 2003, p. 111). The trigger event is very important as it often dictates the magnitude and type of crisis it will become. In addition, it also brings internal and external attention to the crisis, thus creating public responses such as fear and confusion (Seeger, Sellnow, & Ulmer, 2003, p. 112).

Crisis Recognition

A situation does not become a crisis until key stakeholders and members of the organization agree that it indeed is a crisis. However, these two parties may not agree upon a situation that is presented as a crisis. In addition, management within the organization may not take actions to recognize crisis warning signs and take preventative actions. As a result, the crisis management team may have to persuade management into believing that a crisis situation is upon them. For example, it was found by Penrose (2000) that if an organization perceives a crisis as a threat, the organization will be more

willing to create a crisis plan (p. 166). It is important that an event that is a crisis be labeled as such, because this changes the way in which the organization responds to its onset. For example, “when a problem becomes defined as a crisis, the organization expends more resources on the problem and works harder to discover an explanation for it” (Coombs, 1999, p. 90). This includes activating the crisis management plan (CMP).

In order to understand a crisis once it has arisen, it is important for the crisis management team to first collect data, process it into information that can be used, store the information, and then give the information to external stakeholders (Coombs, 1999, p. 90). The information is necessary so that the team can make decisions concerning the situation and what messages to pass onto the stakeholders (Coombs, 1999, p. 99).

It is the role of the crisis managers to present the crisis in such a way as to provide a desirable response from the organization itself. Although defining certain situations as crises may be ambiguous, natural disasters often go uncontested by stakeholders as being defined as a crisis (Coombs, 1999, p. 95). Overall, in order to label a situation a crisis, the crisis manager needs information indicating that a crisis is important, such that there will be a probable loss, it is immediate, and uncertain, such that there is vagueness surrounding it (Coombs, 1999, p. 97).

Crisis Containment and Recovery

The main goal of crisis containment is to prevent the effects of the crisis from spreading to other parts of the organization as well as limiting the duration of the crisis (Coombs, 1999, p.113). In addition, it is imperative that the crisis team convey that they are in control of the situation, as well as show concern and compassion for those affected by the crisis. The four topics addressed during the crisis containment and recovery phase are (a) the initial response, (b) reputational management concerns, (c) enactment of the

contingency and business resumption plan, and (d) follow-up communication (Coombs, 1999, p. 113).

Initial crisis response

The initial crisis response is the first public message addressed through mass media. As a result, this stage is very important as it has the ability to modify the image and communication efforts of the organization in the eyes of the stakeholders. For example, it is important for the organization to respond quickly so as to prevent inaccurate information from other sources concerning the crisis from reaching the stakeholders. A quick response also conveys the image that the organization is in control of the situation and has the ability to deal with the problem. The initial crisis response must also be consistent with a unified response on the part of the organization through a designated spokesperson. In addition, during this time, the organization must remain open, such that they are available to the media, possess a willingness to disclose information, and are honest (Coombs, 1999, p. 117).

In the initial response of crisis communication, it is necessary for the organization to give instructing information to stakeholders by telling them what happened and how the crisis will affect them. This includes giving them basic information about the crisis, including what happened, where, why, and how the crisis occurred. In addition, instructing information includes telling the stakeholders if there is anything they need to do in order to protect themselves and what is being done to remedy the situation (Coombs, 1999, p.120). Although it is stressed within the crisis management literature that an organization must collect information before taking action, it is often necessary to act without sufficient information about the crisis or the effects of it” (Seeger, Sellnow, & Ulmer, 2003, p. 131).

Reputational concerns and crisis communication

The second part of crisis containment and recovery is reputational management concerns. An organization's reputation during a crisis is affected by their crisis communication strategies, which is how the organization responds through their actions and messages to stakeholders during a crisis. As a result of the organization's crisis communication, the perceptions that the stakeholders have of the organization will be affected. "A company's crisis-response strategies, and all its accompanying postcrisis communication, should make every attempt to protect and/or repair the organization's image" (Strother, 2004, p. 291). According to Barton (as cited in Strother, 2004), the primary goals of crisis communication in an organization are to:

- provide accurate information,
- prevent the spread of the crisis,
- limit the duration of the crisis,
- show compassion,
- demonstrate corporate responsibility,
- address compensation of victims and their families,
- prevent further occurrences where possible.

According to Coombs (1999), "crisis communication should continue throughout the life cycle of the crisis" (p. 130). In addition, even though disseminating information through communication with the press is important, this represents only one of the communication tasks of an organization during a crisis or another major event.

Specifically, it is necessary for the organization to communicate with all its stakeholders, beginning with its immediate employees, through several different information channels (Strother, 2004, p. 290). It is important to update relevant stakeholders as new developments concerning the crisis emerge.

There are four pieces of information that stakeholders should be made aware of as the crisis unfolds. These include that (a) stakeholders should know how the recovery effort is progressing, (b) identify and relay what the cause of the crisis was, (c) actions taken in order to prevent a similar crisis from occurring, and (d) any outside support that the organization is receiving (Coombs, 1999, p. 131). According to Seeger, et al., (2003), poor communication can actually escalate the crisis, making recovery nearly impossible (p. 65). If stakeholders feel as though the communication strategy was adequate and their questions were answered, crisis resolution is able to occur. In addition, communication is then the center of bringing closure to a crisis situation (Seeger, Sellnow, & Ulmer, 2003, p. 75).

Crisis Event and *The Disaster Handbook*

The Disaster Handbook (UF/IFAS, 1998) provides information on what actions to take during a disaster. Although it discusses aspects of a disaster, it does not directly coincide with Coombs' crisis management model, primarily because *The Disaster Handbook* focuses solely on natural disasters. The document includes

- evacuation safety tips and preparation for natural and man-made disasters,
- establishing a safe place if the person does not evacuate,
- the role of government in a disaster,
- working with local emergency government,
- Federal disaster assistance program,
- help after a disaster,
- recovery- Disaster Application Center,
- how the public can help disaster victims.

Post-Crisis Stage of Crisis Management

Although a crisis may be considered over by those involved, the crisis manager must then evaluate how their team performed and continue to monitor the crisis once it has passed. Such evaluation efforts during the final post-crisis stage of crisis

management will help to better prepare the organization in the event of another crisis, leave stakeholders with a positive image of the organization, as well as enabling the crisis manager to determine if the crisis is truly over (Coombs, 1999, p. 16). According to Penrose (2000), “an organization that does not evaluate its crisis management strategy after a crisis will be little better prepared to manage the next crisis” (p 167). Because much can be learned from the evaluation of the crisis response efforts, two areas are evaluated. These include how the organization actually dealt with the crisis, which refers to crisis management performance, and also the impact of the crisis itself is evaluated, including damage assessments (Coombs, 1999, p. 136).

In terms of crisis management performance evaluation, the main focus is the crisis management plan and how the crisis management team carried it out. Following the identification of any weaknesses, the plan would then be revised. The crisis impact is evaluated based upon financial, reputational, human, and media factors. For example, the damage to the organization’s reputation could be determined by stakeholder feedback. In addition, the presence of deaths, injuries, and environmental damage would be assessed (Coombs, 1999, p. 140).

Post-Crisis Stage and *The Disaster Handbook*

After the crisis, *The Disaster Handbook* focuses on specific actions to take in order to recover from the crisis. This section includes

- safety,
- emotional recovery,
- emergency food and water,
- health and sanitation,
- wildlife and pest issues,
- community recovery,
- assistance programs and insurance concerns.

Although a major source of information regarding disasters as they apply to communities, it does not elaborate upon on what actions Extension is to take if it is affected by a crisis, including natural disasters. Specifically, “this module is to help Extension personnel assist their communities in times of disaster. These materials refer not just to disaster preparedness, but to surviving disaster situations and recovering from them” (UF/IFAS, 1998).

Risk Perception

Since the 1970’s, studies have emerged indicating that how the public perceives risk is significantly different from how “experts,” including those who make policies and are involved with scientific fields, view risks. While experts often view risk in terms of its measurable attributes, the public focus on qualitative, value-laden attributes of risk (Groth, 1998). According to Slovic (1987), these attributes that affect public perception of risk, or “risk space,” are on a two dimension continuum. Risks are ranked from “known” to “unknown” on one continuum representing whether or not the risk is new or known to science. On the other continuum, the risk is ranked from “dreaded” to “not dreaded,” which includes whether or not people are able to control their own risk. If a risk is found near the “dreaded” end of the continuum, then there is more perceived risk.

In conjunction with the research of Slovic, Sandman (1987) determined that “outrage” describes the qualitative attributes of risk. “Outrage” is defined as “all the attributes of a risk that determine how likely it is to worry you or make you angry” (Sandman, 1987). “Hazard,” then, is the measurable side of risk, or how likely it is to kill you. While the public focuses on “outrage” and ignores “hazard,” experts focus on “hazard.” As a result, the more closely the risk affects the public, the more the emotional their reaction will be.

Socio-Technical Systems Approach

The socio-technical approach can be used to explain the importance of the crisis management plan and how it is carried out by the Extension organization. The integration of the plan and the workforce in order to carry out that plan is the essence of socio-technical research.

The socio-technical systems theory is explained as

Organizations consist of both a social, or human, system and a technological system, and that the fit between the two systems determines the overall effectiveness of the organization. As the theory indicates, the sociotechnical systems (STS) approach is primarily a theory of organizational design, incorporating both industrial engineering and behavioral science concepts in the diagnosis of organizational problems. (Shashkin, Burke, Lawrence, & Pasmore, 1985, p. 46)

At the core of STS are the creation of small groups, which operate independently of other aspects of the organization, even if this requires a restructuring of the organization itself. As a result, because each small group is autonomous, each team member must be skilled in many different areas, as well as interdependent with other members.

“Intergroup operations are designed in terms of a pooled technology. Each group makes its own relatively independent contribution to the organization” (Shashkin, et al., 1985, p. 46). In order to enact organization change, technical changes are made at the group level, in addition to the technological changes on the organizational level.

Specifically to this study, the socio-technical system helps to explain the gap that exists between the creation of *The Disaster Handbook* and the expectations that county officials and Extension administration had for agents, even though personally hit by the hurricanes in 2004. As made evident by available literature, when a crisis does occur, as a result of natural disasters or otherwise, it is essential that every organization have a

protocol to follow and opportunities to practice and evaluate actions taken. Further, the organization fit needs to be examined to determine whether adjustments need to be made to either the group structure or activities and crisis protocol.

Summary

A crisis can be defined as “as an event that is an unpredictable, major threat that can have a negative effect on the organization, industry, or stakeholders if handled improperly” (Coombs, 1999, p. 2). As a result, a crisis can pose a severe threat to an organization or a community as a destructive force. In order to mitigate the potentially disastrous effects of and to deal with a crisis situation effectively, crisis management exists. According to Coombs’ definition, crisis management consists of prevention, preparation, performance, and learning (Coombs, 1999, p.4). “Crisis management is a process of preventing, preparing for, performing, and learning from crises” (Coombs, 1999, p. 5).

The prevention phase of crisis management includes actions that are taken by the organization to prevent a crisis from occurring in the first place. Crisis prevention includes change and monitoring, which refers to taking actions in order to reduce the probability that a warning sign will become a crisis. In addition, monitoring includes evaluating the changes that were made and then determining if those changes were effective in reducing the probability that the crisis will occur (Coombs, 1999).

Following the prevention phase of crisis management is the preparation phase. The preparation phase includes determining where and when a crisis may occur due to weaknesses in the organization. An organization first must determine which types of crises it can be affected by including natural disasters, malevolence, technical or human breakdowns, challenges, megadamage, organizational misdeeds, workplace violence, or

rumors (Coombs, 1999). The types of crises that an organization may face are reflected in the crisis management plan (CMP), which allows the organization to mitigate the possible negative effects in the event that a crisis occurs. The CMP includes background information, responsibilities of crisis team members, and a plan for actions to be taken once the crisis does occur (Coombs, 1999, p. 79).

The third phase of crisis management is performance, which is also connected to the crisis management plan. In this phase, through simulated or real crisis situations, the crisis management team, plan, and communication system are tested in order to determine if they are adequate. Lastly, the fourth phase is learning. This includes evaluating the actions taken during the performance phase in order to determine strengths and weaknesses in the crisis plan.

Although *The Disaster Handbook* does provide valuable information regarding community disaster preparation, it does not provide a means in which Extension faculty can prepare themselves. Rather, it is contradictory as it implies the role of Extension is to be a primary source of disaster information, as well as other national and state agencies, but designates agents as responsible to their families first. In addition, it does not serve to prepare faculty to deal with professional demands and personal hardships that can occur as a result of crisis situations.

CHAPTER 3 METHODOLOGY

The purpose of this study was to determine the readiness on the part of UF/IFAS Extension faculty to serve as front-line responders in the preparation and recovery from the 2004 hurricane season. In addition, the study was conducted to determine how well agents were prepared to deal with professional demands, job expectations and clientele demands, while coping with personal hardships as a result of the hurricanes. A third purpose was to discern the availability of a crisis management plan to guide Extension faculty on internal communications, roles, and responsibilities. The objectives of the study were as follows:

1. Determine how well Cooperative Extension Service carried out its responsibilities as a front-line responder, as indicated by the following three subobjectives:
 - a. Determine the readiness of Extension faculty to serve as front-line responders during the 2004 hurricane season, in terms of preparation, performance, and subsequent evaluation or learning
 - b. Determine the personal hardships of Extension faculty during the 2004 hurricane season and the role that Extension played to reduce these hardships
 - c. Determine the professional hardships of Extension faculty during the 2004 hurricane season and the role that Extension played to reduce these hardships
2. Determine whether or not needs exist for professional development, training, curriculum, and resources in terms of future natural disasters
3. Determine the availability of a crisis management plan to guide Extension faculty on internal communications, roles, and responsibilities

Extension Faculty Survey

As part of the disaster response network in each of the 67 counties in the state of Florida, the Cooperative Extension Service has the ability to aid a unique sect of the population affected by natural disasters, as well as their own specific clientele. As a result, Extension's role was critical to the statewide disaster response during the 2004 hurricane season. In November 2004, a list of all the county and district Extension faculty with viable email addresses as of October 2004 was obtained from UF/IFAS (Irani, Kistler, Telg, & Place, 2005, p. 2). The original list of faculty consisted of 332 names with email addresses. Following corrections for incorrect addresses and retirements, the final list of faculty surveyed consisted of 328 viable addresses.

Questionnaire Design and Variable Definitions

The web-based survey consisted of 76 qualitative and quantitative items that measured Extension faculty personal and professional needs, disaster preparedness, communication efforts, disaster resources used, Extension's impact during hurricane relief efforts, and demographic information. The survey also contained 11 questions designed to learn more about social and demographic characteristics of the respondents. The survey was designed by a team of researchers in the department of Agricultural Education and Communication at the University of Florida and followed the Tailored Design Method (Dillman, 2000).

The survey contained specific questions aimed at obtaining "a clear understanding of Extension's role during the hurricane preparation and recovery efforts" (Irani, et al., 2005, p. 2), professional development needs, and crisis communication efforts of faculty. In addition, "experts from the departments of Family, Youth, and Community Sciences; Agricultural and Biological Engineering; Food and Resource Economics; and Clinical

and Health Psychology were also asked to include and edit questions that touched on such topics as disaster preparedness, educational materials, agents' personal needs (including mental health issues), and community support needs" (Irani, et al., 2005, p. 2). The study utilized the online web survey site, Zoomerang. However, because this software was not available in the department of Agricultural Education and Communication at the University of Florida, the developers of the questionnaire cooperated with Extension faculty at Purdue University to develop the online instrument utilized in this study.

The survey utilized a variety of question types, including open-ended questions, dichotomous yes/no questions, selection from multiple choices, and Likert-scale questions. Responses to the Likert scale included "not at all," "slight extent," "moderate extent," and "great extent." The multiple choice responses depended upon the question being asked and were not identical for each question.

Objective 1: Determine How Well the Cooperative Extension Service Carried Out Its Responsibilities as a Front-Line Responder

Objective 1a: Determine the Readiness of Extension Faculty to Serve as Front-Line Responders During the 2004 Hurricane Season

Measures of faculty readiness to respond as front-line responders included preparation prior to the crisis, performance during, and the evaluation and learning afterwards. The indicators of faculty readiness to respond also included communication efforts during the crisis, sources of support for emotional and physical needs, the ability to address the needs of clientele, and utilization of resources.

An indicator of workforce performance during the crisis is communication efforts. Communication efforts focused on communication channels used by the agent for the public, channels used by the agent for clientele, channels used by the Extension office for

the public, public perception of the communication efforts, and clientele perception of the communication efforts. Increased effort as well as a variety of communication channels would indicate that the agent was attempting to provide the public population as well as their clientele with pertinent disaster information.

Communication channels directed at the public and used by the agent were measured by four questions (Table 3-1). The first question was aimed at determining how much the agent made use of mass media channels in order to communicate necessary information to the public during the recent hurricane season. This question utilized a Likert scale ranging from “not at all,” “not at all,” “slight extent,” “moderate extent,” and “great extent.” The second question focused on those sources or channels used for communication. Agents were asked which channel they thought was most effective in conveying such information to the public. Lastly, an open-ended question attempted to gain additional information regarding the type of message that agents were trying to disseminate to the public during the hurricanes.

Table 3-1. Questions describing communication channels used by agent for the public.

Question	Scale
To what extent did you make use of mass media channels to communicate during recent hurricanes?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
Of the communication sources/channels you used, which one was most effective in conveying information to the public during the recent hurricanes?	Flyers, print materials Newspaper Radio public service announcements Live radio interviews Internet/web Other

Communication channels used by agents to provide information to clientele groups were measured by five questions (Table 3-2). The first question, which used a Likert

scale, was aimed at determining the extent to which the agents used the personal communication methods of face to face, on-site visits, telephone, cell phone, text messaging, or e-mails in order to convey information to clientele groups during the 2004 hurricane season. Second, qualitative information concerning this topic was obtained by an open-ended question. The third multiple-choice question asked of those personal communication methods used, which ones were most effective in conveying information to clientele groups. Lastly, a qualitative question was aimed at determining the message that the Extension agent was attempting to convey to clientele during the season.

Table 3-2. Questions pertaining to communication channels used by agents for clientele.

Question	Scale
To what extent did you use the following personal communication methods to convey information to your Extension clientele group during the recent hurricanes?	Likert
Face to face	1 Not at all
On-site visits	2 Slight extent
Telephone	3 Moderate extent
Cell phone	4 Great extent
Text messaging	
Electronic mail	
Other	
Of the personal communication methods you used, which one was most effective in conveying information to your Extension clientele group during the recent hurricanes?	Face to face On-site visits Telephone Cell phone Text messaging Electronic mail Other

The third measure of the communication efforts of Extension faculty included four questions that were used to describe the communication channels used by the entire county Extension office for the public (Table 3-3). The first question was used to determine the extent to which the local Extension office made use of mass media channels in order to communicate to the public. The second question described the

extent that the Extension office used the communication sources or channels of flyers or print materials, newspapers, radio public service announcements, live radio interviews, television public service announcements, live television interviews, the internet or web, or other in order to convey information to the public during the hurricane season. The first two questions utilized a Likert scale ranging from “not at all” to “great extent.” Lastly, it was asked whether the Extension office had a plan to manage communication efforts in a crisis like the hurricanes or other emergency situations.

Table 3-3. Questions pertaining to communication channels used by Extension for the public.

Question	Scale
To what extent did your local extension office make use of mass media channels to communicate during the recent hurricanes?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
To what extent did your Extension office use the following communication sources/channels to convey information to the public during the recent hurricanes?	
Flyers, print materials	Likert
Newspaper	1 Not at All
Radio public service announcements	2 Slight Extent
Live radio interviews	3 Moderate Extent
TV public service announcements	4 Great Extent
Live TV interviews	
Internet/web	
Other	
Does your Extension office have a plan to manage communication efforts in a crisis like the hurricanes or other emergency situations?	Yes/No
Internally	
Externally	

The fourth topic, measure of performance, concerned faculty perceptions toward the public’s awareness of Extension communication efforts (Table 3-4). A Likert-type question asked the extent to which the Extension faculty member believed the public was aware of the efforts on the part of Extension during the hurricanes. The fifth measure

concerned faculty perceptions toward clientele awareness of Extension communication efforts. This measure used a Likert-type question asking the faculty member's perception of the extent to which the Extension clientele group was aware of the efforts of Extension during the hurricanes.

Table 3-4. Questions pertaining to faculty perceptions of public and clientele awareness of Extension communication efforts during the 2004 hurricane season.

Question	Scale
To what extent do you believe the general public was aware of Extension's efforts during the recent hurricanes?	Likert
	1 Not at all
	2 Slight extent
	3 Moderate extent
	4 Great extent
To what extent do you believe your Extension clientele group was aware of Extension's efforts during the recent hurricanes?	Likert
	1 Not at all
	2 Slight extent
	3 Moderate extent
	4 Great extent

Another factor affecting readiness to respond was sources of support for the Extension faculty. This included identifying sources of support that agents utilized to meet their emotional and physical needs. Three questions in the survey identified sources of emotional support for Extension faculty. Faculty were asked the extent to which they had a source of support for their own emotional needs and to whom (either person or agency) did they turn to for support. Lastly, qualitative data was collected by an open-ended question asking the agents to provide any additional information regarding personal needs that they had during the 2004 hurricane season.

Two questions described support for the physical needs of Extension faculty during the hurricane season (Table 3-5). These included determining the extent to which they had a source of support for their physical needs, including shelter, food, water, and

electricity. In addition, they were asked to identify the person or agency that was a source of support for their physical needs.

Table 3-5. Questions pertaining to sources of emotional and physical support for Extension faculty.

Question	Scale
To what extent did you have a source of support for your own emotional needs?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
To whom (person or agency) did you turn for support of your emotional needs?	Open-ended
To what extent did you have a source of support for your own physical needs (shelter, food, water, electricity)?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
To whom (person or agency) did you turn for support of your physical needs (shelter, food, water, electricity)?	Open-ended

Extension faculty readiness to respond also was measured by asking agents how well prepared they were to deal with job and clientele demands and needs during the 2004 hurricane season (Table 3-6). This variable addressed whether or not they knew what to do and as a result, how well they performed their job. Two factors affecting faculty readiness to respond are (a) the ability of the agent to address the needs of clientele and (b) the utilization of available resources.

The ability to address the needs of clientele is supported by three questions, including determining the extent to which agents were prepared to address the professional challenges that they were faced with in meeting the needs of clientele. A second question asked agents the extent to which they were prepared to address the stress or emotional symptoms that clientele exhibited after the 2004 hurricanes. Both questions were measured using a Likert scale. The Likert scale consisted of “not at all”, “slight

extent,” “moderate extent,” and “great extent. In addition, an open-ended question asked agents to elaborate upon this by obtaining information regarding how agents addressed the needs of clientele if they exhibited stress or emotional symptoms.

The second factor affecting Extension faculty readiness to respond is the utilization of resource. Utilization of resources was supported by seven questions. This involved the agents’ use of agencies or organizations that could have aided their response during the 2004 hurricane season. Agents were asked to what extent they accessed local, state, and federal agencies to conduct a more effective response before, during, and after the hurricanes. The Likert scale consisted of “not at all”, “slight extent,” “moderate extent,” and “great extent.” For each agency level, agents were asked to specify other agencies that they used, including the American Red Cross and the Salvation Army.

Table 3-6. Questions pertaining to faculty readiness to respond.

Question	Scale
	Likert
To what extent were you prepared to address the professional challenges that you faced in meeting the needs of clientele?	1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
	Likert
To what extent were you prepared to address the stress or emotional symptoms your clientele exhibited after the hurricanes?	1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
To what extent did you access or contact the following local agencies in order to do your job more effectively before, during, and after the recent hurricanes?	
County Emergency Management	Likert
County Fire/Rescue	1 Not at all
Local Law Enforcement	2 Slight extent
County Road Department	3 Moderate extent
County and/or City Public Works Department	4 Great extent
County and/or City Solid Waste Department	
County Health Department	
Local/Regional Utilities (electric, gas)	
Telephone Company	

Table 3-6. Continued.

Question	Scale
To what extent did you access or contact the following state agencies in order to do your job more effectively before, during, and after the recent hurricanes?	
Florida Department of Agriculture & Consumer Services Division of Consumer Services	
Florida Department of Agriculture & Consumer Services Division of Animal Industry	
Florida Department of Agriculture & Consumer Services Division of Forestry	
Florida Department of Agriculture & Consumer Services Division of Plant Industry	Likert
Florida Department of Agriculture & Consumer Services Office of Bio & Food Security Preparedness	1 Not at all
Florida Department of Children and Families	2 Slight extent
Florida Department of Community Affairs, Division of Emergency Management	3 Moderate extent
Florida Department of Community Affairs, Division of Housing and Community Development	4 Great extent
Water Management District	
Florida Department of Health	
Florida Department of Transportation	
University of Florida/IFAS	
University of Florida Health Science Center	
To what extent did you access or contact the following federal agencies in order to do your job more effectively before, during, and after the recent hurricanes?	
USDA: Farm Service Agency (FSA)	
USDA: Natural Resources Conservation Service (NRCS)	
USDA: Rural Development (RD)	
USDA: Animal & Plant Inspection	
U.S. Environmental Protection Agency (EPA)	Likert
U.S. Department of Health and Human Services: Centers for Disease Control (CDC)	1 Not at all
U.S. Department of Homeland Security: Federal Emergency Management Agency (FEMA)	2 Slight extent
National Oceanic & Atmospheric Association (NOAA): National Weather Service	3 Moderate extent
National Oceanic & Atmospheric Association (NOAA): National Hurricane Center	4 Great extent
U.S. Occupational Safety & Health Administration (OSHA)	
U.S. Army Corps of Engineers	

Table 3-6. Continued.

Question	Scale
To what extent did you access or contact the following other organizations/resources in order to do your job more effectively before, during, and after the recent hurricanes? American Red Cross Salvation Army	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent

It was also investigated as to whether the use of *The Disaster Handbook* by Extension front-line responders helped them to perform better in their job than those who did not use it (Table 3-7).

Table 3-7. Questions pertaining to *The Disaster Handbook*

Question	Scale
Does your office have the UF/IFAS publication, <i>The Disaster Handbook</i> ?	Yes/No
Do you know where <i>The Disaster Handbook</i> is located within your office?	Yes/No
Have you ever been trained on how to use <i>The Disaster Handbook</i> ?	Yes/No
Did you refer to <i>The Disaster Handbook</i> during the hurricane season or for any other disaster in 2004?	Yes/No
	Within the month prior to the start of the 2004 hurricane season
	Within 2-6 months before the 2004 hurricane season began
Prior to the 2004 hurricane season, when was the last time you reviewed or used <i>The Disaster Handbook</i> ?	Within 7-12 months before the 2004 hurricane season began
	More than a year ago
	Never
Which format of <i>The Disaster Handbook</i> would you most likely use?	The notebook (print) format
	The web-based format
	Would use both formats

This section utilized an array of question formats, including dichotomous yes/no, open-ended, and selection from provided choices that measured the respondents' preparations before the crisis. Nineteen questions were included in this section, beginning with asking if their office even has *The Disaster Handbook*, if they knew where it was located in the office, and if they received training on how to use it. Knowledge of its presence and location within their work office would help to increase its use during such times of disaster. In addition, training would help agents to use *The Disaster Handbook* effectively amongst its clientele.

The remaining questions focused on use of the handbook, in terms of the print and web-based versions. For example, the survey asked if the faculty member familiarized themselves with the print and web versions of the handbook or reviewed them prior to the beginning of the 2004 hurricane season. In addition, faculty were asked what section was most helpful and if they had suggestions to improve the print and web versions.

Objective 1b: Determine the Personal Hardships of Extension Faculty during the 2004 Hurricane Season and the Role that Extension Could Play to Reduce These Hardships

Sources of personal hardships, were used to determine the causes of personal stress faculty felt during the 2004 hurricane season. For example, a factor affecting personal hardship would be whether or not that faculty member experienced damage to their home, as this personal experience has the ability to affect their job performance. In addition, sources of hardship also helped to explain if the Extension faculty member had difficulty in balancing work and family life during this time. The first three questions of the survey focused on the personal hardships of faculty during this time. For instance, they were asked to what extent they experienced damage to their home, experience

personal stress, and how these factors affected their performance on the job during hurricane preparation and recovery efforts. Questions pertaining to sources of personal hardships experienced by Extension faculty can be found in Table 3-8.

Table 3-8. Questions pertaining to sources of personal hardships experienced by Extension faculty.

Question	Scale
To what extent did you experience damage to your home or experience other personal hardships?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
To what extent did you experience personal stress or emotional symptoms while involved in hurricane preparation and relief efforts?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
To what extent did your personal experience affect your job performance - such as having trouble concentrating or missing work?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent

Objective 1c: Determine the Professional Hardships of Extension Faculty during the 2004 Hurricane Season and the Role that Extension Could Play to Reduce These Hardships

The professional hardships felt by agents were determined by two questions. Using a qualitative question, each faculty member was asked to give the three greatest professional challenges they faced during the hurricane season. Secondly, they were asked if barriers existed to prevent them from using certain Extension resources, such as *The Disaster Handbook* or the “Triumph Over Tragedy” curriculum during the hurricane season. Such barriers would include location of the materials, knowledge that they were available, or time to allow their use. Sources of hardships included the ability of Extension faculty to balance their work and family life. Two questions supported this measure. First, faculty were asked how difficult it was to meet the needs of both their

professional and personal lives. Second, they were asked what was most difficult about balancing professional and personal lives. Overall, the sources of hardship, both personal and professional, would influence how ready faculty were to respond to the needs of Florida residents during the 2004 hurricane season by affecting their job performance. Questions pertaining to personal hardships experienced by Extension faculty can be found in Table 3-9.

Table 3-9. Questions pertaining to personal hardships experienced by Extension faculty.

Question	Scale
List the three (3) greatest professional challenges you faced as a result of the 2004 hurricanes.	Open-ended
To what extent did the following barriers get in the way of you utilizing resources such as the Disaster Handbook, Triumph Over Tragedy, or other Extension resources following the hurricanes.	Likert
Materials were located in the main office	1 Not at all
Didn't know that certain materials were available	2 Slight extent
Didn't have time to access the materials	3 Moderate extent
Didn't know where to find materials	4 Great extent
Materials were online and we didn't have computer access	
To what extent was it difficult for you to balance personal and professional needs?	Likert
	1 Not at all
	2 Slight extent
	3 Moderate extent
	4 Great extent
Describe what was most difficult for you about balancing personal and professional needs.	Open-ended

Objective 2: Determine if Needs Exist for Professional Development, Training, Curriculum, and Resources

One of the primary goals of crisis management is feedback and evaluation. Thus one objective of this study was to determine if professional development needs exist amongst Extension faculty in Florida, in regards to future natural disasters. Specifically, the survey strived to determine if the presence of specially trained volunteers would aid faculty in dealing with home and family issues. In addition, its goal was to determine

what areas of professional development were needed and in what training formats such information should be presented. Questions pertaining to professional development and future disasters can be found in Table 3-10.

Table 3-10. Questions pertaining to professional development and future disasters.

Questions	Scale
If specially trained volunteers were available to help you with home and family issues in the immediate aftermath of a future disaster so that you could better focus on your Extension work with disaster victims, to what extent would you make use of these supports?	Likert 1 Not at all 2 Slight extent 3 Moderate extent 4 Great extent
To what extent do you need professional development in the following areas in preparation for hurricanes and other emergency situations?	
Working with the media	Likert
Coping with personal stress	1 Not at all
Helping coworkers cope with stress	2 Slight extent
Helping clientele cope with stress	3 Moderate extent
Personal needs (emotional and physical needs)	4 Great extent
Hurricane disaster preparedness	
Applying my subject matter in disaster situations	
How likely would you be to attend or participate in the following training formats in preparation for hurricanes or other emergency situations?	
Statewide conference	Likert
District meeting	1 Not at all
Web-based module/CD-ROM	2 Slight extent
Telephone conference	3 Moderate extent
Videoconference	4 Great extent
Print materials	

Objective 3: Determine the Availability of a Crisis Management Plan to Guide Extension Faculty

The UF/IFAS publication *The Disaster Handbook*, although not a crisis management plan, provides guidance for Extension during disasters. It provides Extension faculty with information to provide to the public and clientele groups. However, it does not offer guidance on the roles and professional expectations of faculty, and emergency contact information. It includes information on disaster preparation, what

to do during a disaster, as well as disaster recovery, especially for homes and farms. For example, it describes how to make a disaster supplies kit and how to evacuate safely. It also provides information on how to deal with specific disasters, including such incidences as hurricanes, lightning, floods, tornadoes, and events of terrorism.

The Disaster Handbook will be compared to Coombs' (1999) crisis management theory to determine its effectiveness as a crisis management plan for the Florida Cooperative Extension Service. The essential elements of a crisis management plan include

- **Rehearsal dates:** These are dates in which the crisis management plan was practiced.
- **Crisis management team:** This section identifies who is in charge of the team, as well as how to contact them, how to begin putting the plan into action, and when the plan should be activated, such as what denotes a crisis.
- **CMT contact sheet:** This section lists all the members of the crisis management team, their complete contact information, their areas of knowledge, and any outside people that may be needed, such as those involved in emergency or insurance response.
- **Crisis risk assessment:** This section identifies all the possible crises that an organization may encounter, determines the probability that each will occur, and identifies damage that will ensue.
- **Incident report:** In this section, the actions taken during a crisis by the CMT are recorded, which is to be used during the evaluation phase.
- **Proprietary information:** Although it is important for crisis managers to fully disclose all information to the organizational stakeholders, some information must be kept confidential until it is reviewed by the head of the organization or legal council.
- **CMT strategy worksheet:** This section relates to crisis communication, such that the crisis manager must record what message was sent, what audience it was sent to, and the goal of the communication or message.
- **Secondary contact sheet:** This section identifies additional stakeholders who may need to be contacted in the event of a crisis, as they will be able to provide information that the organization needs.

- **Business resumption plan:** Because an organization may suffer damage to facilities or equipment during a crisis, this section details procedures to follow if this does occur, so that the organization can resume operation.
- **Crisis control center:** This section deals with where team members must meet in the event of a crisis.
- **Postcrisis evaluation:** After a crisis is over, this section provides the team with a means in which to evaluate their effort during the crisis, primarily focusing on the communication efforts. In addition, it provides an opportunity to correct weaknesses of the plan as well as maintain its strengths.

Population Study

The population for the study included University of Florida/IFAS county and district Extension faculty. The unit of analysis is based upon individuals. The survey was sent to all county and district Extension faculty, which was obtained from UF/IFAS, with viable email addresses as of October 2004. The original list of Extension faculty consisted of 332 names and after making corrections for incorrect addresses and retirements, the final list of faculty surveyed consisted of 328 participants. The overall response rate consisted of 208 out of 328, or 63.41%.

To learn more about the faculty who completed the survey, respondents were asked to provide answers to eleven questions, which were a mixture of multiple-choice and open-ended items that measured demographic items (Table 3-11). Specifically, three questions determined level of experience, including Extension rank and years of experience with the Cooperative Extension Service. Extension rank was determined through a multiple choice question, with choices Extension agent I, II, III, or IV, Courtesy Extension agent I, II, III, or IV, Extension Program Assistant, or other. These items were important as they could possibly serve as a predictor of performance during preparatory and recovery efforts during a natural disaster. One item measured

administrative responsibilities, such as whether the respondent was a County or District Extension Director.

Table 3-11. Questions pertaining to descriptive information of respondents.

Question	Scale	
What is your Extension rank?	Extension Agent I	
	Extension Agent II	
	Extension Agent III	
	Extension Agent IV	
	Courtesy Agent I	
	Courtesy Agent II	
	Courtesy Agent III	
	Courtesy Agent IV	
	Extension Program Assistant	
	For those with administrative responsibilities only, please select the appropriate option.	County Extension Director District Extension Director
What county or counties do you work in?	Open-ended	
How many years of experience do you have with the Cooperative Extension Service?	Open-ended	
Please indicate your primary program area.	Agriculture/Natural Resources	
	Community Development	
	Family and Consumer Sciences (including FNP/EFNEP)	
	4-H/Youth Development	
	Sea Grant/Aquaculture	
	Ornamental/Environmental Horticulture	
	Urban Horticulture (including Master Gardener)	
	Commercial Horticulture (vegetables, citrus, forestry)	
	Please indicate your age.	Open-ended
	Please indicate your gender.	Open-ended
Please indicate the ethnicity with which you most closely identify.	African-American	
	Asian-American	
	Caucasian	
	Hispanic/Latino	
	Native American Other	

Another important question asked what county or counties the respondent worked with, as this would help determine the readiness to respond by coastal or inland faculty.

Two questions provided the primary program area of the respondent, including

agriculture and natural resources, community development, family and consumer sciences (including FNP/EFNEP), 4-H/Youth development, Sea Grant/aquaculture, ornamental/environmental horticulture, urban horticulture (including Master Gardener), commercial horticulture (vegetable, citrus, forestry), or other. Lastly, four questions addressed demographic information, including age, gender, and ethnicity.

Survey Implementation

Because web surveys offer much potential in data collection, with little cost, this method was implemented in this study (Dillman, 2000, p. 400). In addition, according to Dillman (2000, p. 354), web surveys “not only have a more refined appearance to which color may be added, but also provide survey capabilities far beyond those available for any other type of self-administered questionnaire. They can be designed so as to provide a more dynamic interaction between respondent and questionnaire than can be achieved in e-mail or paper surveys.” Through cooperation with Extension Disaster Education Network (EDEN) faculty at Purdue University, the survey was made available on the web through Zoomerang software (Appendix A).

In order to maximize response to the web survey, multiple contacts were made through email (Dillman, 2000, p. 150). A pre-notice letter was sent to all county Extension faculty and District Extension Directors on November 30, 2004 by email (Appendix B). Sent by Extension Dean Larry Arrington, the goal of the email was to inform potential respondents of the forthcoming questionnaire and to encourage their participation. Several days after the email from Dr. Arrington was sent to all Extension faculty, a second email was sent from the researchers in the Agricultural Education and Communication department (Appendix C). This email consisted of an overview of the study, as well as a link to the web-based questionnaire. Finally, two waves of follow-up

were conducted to encourage nonrespondents to complete the questionnaire on December 9 and 20, 2004. The link to the survey was then closed on January 5, 2005, which prevented any new responses.

Data Analysis Procedures

Objectives one and two were analyzed using a percentage distribution response and means. In such cases where multiple questions measure a construct, a summated score was computed (i.e. preparation). A summated scale is calculated by adding the scores from the items that make up each scale to give an overall score for certain scales. To determine the reliability of the new variable created by the summated scale and to determine the internal consistency of the new scale, Cronbach's alpha coefficient was calculated. This is used to determine if all the items that make up the scale are measuring the same underlying construct. The scale is considered reliable if the value of Cronbach's alpha is above .7. Lastly, correlations were conducted to describe the strength and direction of the relationship between certain variables. For example, the Pearson's product-moment coefficient was calculated to determine if there was an association between faculty preparation to address the professional challenges they face and the extent to which they were prepared to address the stress or emotional symptoms exhibited by clientele.

The third objective— to determine the availability of a crisis management plan to guide Extension faculty on internal communications, roles, and responsibilities— was analyzed according to content analysis. Content analysis is “any technique for making inferences by systematically and objectively identifying special characteristics of messages” (Holsti, 1969, p. 608). It is considered to be a mixture of qualitative and quantitative analysis. This is because specific frequencies can be calculated

(quantitative) pertaining to certain categories, while themes and symbols can be analyzed qualitatively (Berg, 2001, p. 242). Content analysis was used to determine if similar themes exist between a crisis management plan, as described by Coombs (1999) and *The Disaster Handbook* (UF/IFAS, 1998). Since this is the only reference agents had, it is important to determine how useful this document was as both as an information source agents would use for the public and clientele and as a crisis management plan to guide faculty on internal communications, roles, and responsibilities.

CHAPTER 4 RESULTS

With the immense damage sustained by the people and property and the crisis situation that often ensues after a natural disaster, it is critical for front-line responders to act quickly. As a result, it is important for responding agencies to be well versed in their roles, responsibilities, and the resources available to them. Considered to be a front-line responder, the Cooperative Extension Service in Florida occupies a unique niche in the disaster preparation and recovery system.

The purpose of this study was to determine the readiness on the part of UF/IFAS Extension faculty to serve as front-line responders in the preparation and recovery from the 2004 hurricane season. In addition, the study was conducted to determine how well agents were prepared to deal with professional demands, job expectations and clientele demands, while coping with personal hardships as a result of the hurricanes. A third purpose was to discern the availability of a crisis management plan to guide Extension faculty on internal communications, roles, and responsibilities.

Objective 1: Determine How Well the Cooperative Extension Service Carried Out Its Responsibilities as a Front-Line Responder

Objective 1a: Determine the Readiness of Extension Faculty to Serve as Front-Line Responders During the 2004 Hurricane Season

The readiness of Extension faculty to serve as front-line responders during the 2004 hurricane season, and their subsequent preparation, performance, and evaluation, was affected by several factors. These include faculty and Extension communication efforts

during the crisis, sources of support for emotional and physical needs, the ability to address the needs of clientele, and utilization of resources.

Preparation of Extension faculty to serve as front-line responders

As suggested by crisis management research, one aspect of crisis management includes preparation by the organization and its constituents. In terms of Extension, it is important to determine how well prepared its faculty were to deal with both the tumultuous hurricane season of 2004 and other crisis situations that may threaten Florida's population. The UF/IFAS publication, *The Disaster Handbook* serves as the major resource available to county faculty when dealing with crisis situations, specifically natural disasters. As a result, it is important to determine how aware they were of *The Disaster Handbook*, in terms of its presence, training, and use.

Table 4-1. Faculty awareness and use of *The Disaster Handbook* (N=208).

Variable	Frequency	%
Does your office have the UF/IFAS publication, "The Disaster Handbook?"		
Yes	193	92.8
No	3	1.4
No Response	12	5.8
Do you know where <i>The Disaster Handbook</i> is located within your office?		
Yes	177	85.1
No	20	9.6
No Response	11	5.3
Have you ever been trained on how to use <i>The Disaster Handbook</i> ?		
Yes	54	26.0
No	143	68.8
No Response	11	5.3
Prior to the 2004 hurricane season, when was the last time you reviewed or used "The Disaster Handbook?"		
Within 12 months before the 2004 hurricane season began	47	22.6
More than a year ago	66	31.7
Never	80	38.5
No Response	15	7.2

As reported in Table 4-1, the majority of faculty (94.2%) knew that their office had a copy of *The Disaster Handbook* and where it was located within the office (85.1%). Although most were aware of the presence of the publication in their office, most Extension faculty had not become familiar or reviewed it recently, prior to the start of the 2004 hurricane season. For instance, 31.7% had not reviewed it in more than a year and 38.5% had never reviewed the publication. In addition, most (68.8%) had never been trained on its use.

Using Pearson's product-moment coefficient (Table 4-2), a relationship was found between a faculty member's use of *The Disaster Handbook* during the hurricane season and their training on its use. Although statistically significant, the correlation coefficient of .203 suggests limited practicality of the relationship.

Table 4-2. Pearson's product-moment correlation with relationship between *The Disaster Handbook* use and training by faculty (N=196).

Variable	Have you ever been trained on how to use <i>The Disaster Handbook</i> ?
Did you refer to <i>The Disaster Handbook</i> during the hurricane season or for any other disaster in 2004?	.203*

*Statistically significant at .05 level

Another critical aspect of crisis preparation is the ability to manage communication efforts. This includes having internal and external plans to disseminate disaster-related information to those who need it. Table 4-3 indicates that although most Extension offices did have an internal plan to manage crisis communication efforts (76.9%), only half reported having an external plan.

Table 4-3. Availability of plans to manage communication efforts in a crisis (N=208).

Does your Extension office have a plan to manage communication efforts in a crisis like the hurricanes or other emergency situations?	Frequency	%
Internally		
Yes	160	76.9
No	33	15.9
No Response	15	7.2
Externally		
Yes	104	50.0
No	80	38.5
No Response	24	11.5

Preparation on the part of Extension faculty was also determined by how able they were to address the professional challenges they faced. As reported in Table 4-4, less than one-in-ten faculty members reported being well-prepared. Even worse, only 7% reported being well-prepared to address stress or emotional symptoms of clientele after the hurricanes.

Table 4-4. Extent to which faculty members were prepared to address professional obligations (N=208).

Variable	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)
To what extent were you prepared to address the professional challenges you faced?	7.2	10.1	27.4	46.2	9.1
To what extent were you prepared to address the stress or emotional symptoms your clientele exhibited after the hurricanes?	8.7	13.5	33.7	37.0	7.2

The relationship between the extent of preparation on the part of faculty to address professional challenges and the extent to which they were prepared to address the stress or emotional symptoms exhibited by clientele after the hurricanes was further examined (Table 4-5). The Pearson's product-moment coefficient of .589, indicates a strong, positive relationship between the variables. In essence, the more prepared the faculty

member to address professional challenges, the more prepared they were to address the stress of their clientele.

Table 4-5. Pearson's product-moment correlation with relationship between extent to which faculty were prepared to address the professional challenges faced and extent preparation to address the stress or emotional symptoms exhibited by clientele (N=188).

Variable	To what extent were you prepared to address the stress or emotional symptoms your clientele exhibited after the hurricanes?
To what extent were you prepared to address the professional challenges you faced?	.589*

*Statistically significant at .05 level

A summated score was calculated to create a measure of preparation by combining questions regarding the extent to which faculty were prepared to address the professional challenges they faced and the extent to which they were prepared to address the stress or emotional symptoms clientele exhibited after the hurricanes. Called "preparation," this new variable had a reliability of Cronbach's alpha equal to .741. In addition, the relationship between preparation, and years of experience in the Extension Service, within the state of Florida, was analyzed using Pearson product-moment correlation coefficient (Table 4-6). There was a slight, positive correlation between the variables. Although statistically significant, the correlation coefficient of .167 suggests limited practicality of the relationship.

Table 4-6. Pearson's product-moment correlation with relationship between extent to which faculty were prepared to address the professional demands and years of experience within the FCES (N=150).

Variable	Preparation
Years of experience within the Florida Cooperative Extension Service	.167*

*Statistically significant at .05 level

Overall, it was found that most faculty knew that their office had a copy of *The Disaster Handbook* and its location, but most had not received training on its use. Correlational analysis revealed a slight relationship between training of faculty on the publication and its use. Only a small percentage of respondents felt greatly prepared to deal with the professional challenges they felt and to address the stress or emotional symptoms exhibited by clientele. In addition, a strong relationship was found between faculty preparation to address professional challenges and the emotional symptoms of clientele.

Performance of Extension faculty as front-line responders

A second aspect of crisis management theory is performance during a crisis. In terms of this study, performance is related to how well Extension faculty fulfilled their professional obligations and use of available resources, such as *The Disaster Handbook* communication channels, and use of local, state, and federal agencies. For example, as seen in Table 4-7, job performance may be affected by the personal experience of each faculty member during the hurricane season, such as if their house was damaged. However, it was found that the job performance, including trouble concentrating or missed work, of approximately one in three faculty members were not at all affected by their personal experiences during the 2004 hurricane season.

Table 4-7. Extent to which the personal experience of faculty affected their job performance (N=208).

Variable	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)
To what extent did your personal experience affect your job performance- such as having trouble concentrating or missing work?	3.8	34.6	41.3	17.3	2.9

In addition, faculty job performance during a crisis could also be enhanced by the use of *The Disaster Handbook* as this publication provides information regarding disaster preparedness and recovery. As shown in Table 4-8, over half (60.1%) of Extension faculty surveyed indicated that they used the publication during the 2004 hurricane season or for any other type of disaster. Since 68% reported they had not been trained on its use, this means they had to learn its contents during a crisis.

Table 4-8. Extension faculty use of *The Disaster Handbook* during the 2004 hurricane season or for any other disaster (N=208).

Did you refer to <i>The Disaster Handbook</i> during the hurricane season or for any other disaster in 2004?	Frequency	%
Yes	125	60.1
No	73	35.1
No Response	10	4.8

Another resource available to faculty during times of disaster include mass media channels which serve as a means to convey important crisis information to the public and clientele groups (Table 4-9). Utilization of mass media channels indicate faculty are performing functions of their job by providing information that could aid the public and clientele groups well-being and safety.

Table 4-9. Extent to which Extension made use of mass media channels during the 2004 hurricane season (N=208).

Variable	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)
To what extent did you make use of mass media channels to communicate during recent hurricanes?	4.8	29.4	27.0	26.1	13.0
To what extent did your local extension office make use of mass media channels to communicate during the recent hurricanes?	6.3	19.2	31.3	32.7	10.6

For example, in Table 4-9, it was found that only 13% of faculty members utilized mass media channels to communicate during the 2004 hurricane season to a great extent. In addition, only one in ten (10.6%) Extension offices made use of such channels to a great extent.

Further analysis using Pearson's product-moment coefficient (Table 4-10), revealed a relationship between the extent to which faculty utilized mass media channels to communicate during the hurricanes and the extent to which the local Extension office made use of mass media channels. The correlation value of .619 indicates that the more an individual reported using mass media channels, the more the faculty reported the office using those channels.

Table 4-10. Pearson's product-moment correlation with relationship between extent to which faculty used mass media channels and extent to which the extension office made use of mass media channels to communicate during the hurricanes (N=195).

Variable	To what extent did you make use of mass media channels to communicate during recent hurricanes?
To what extent did your local extension office make use of mass media channels to communicate during the recent hurricanes?	.619*

*Statistically significant at .05 level.

In addition to mass media channels, personal communication methods allow faculty to convey crisis-related information to clientele groups and to the public. As evident in Table 4-11, the personal communication method used by Extension faculty during the hurricane season were face to face visits with members of the public¹. The most widely used communication channel used by Extension offices to transmit information to the public included fliers and other print materials. According to program area, it was found

¹ All means are calculated with missing responses excluded

that agriculture and natural resource faculty primarily used the personal communication methods of face to face and on-site visits to a great extent, more than any other program area. However, family and consumer science agents used the telephone to a greater extent, while 4-H agents used electronic mail to a great extent. Horticulture faculty also utilized face to face communication and on-site visits to a great extent (Muegge, 2005).

Table 4-11. Extent to which Extension faculty utilized personal communication methods to convey information to clientele groups and to the public during the 2004 hurricane season (N=208).

Communication Method	Frequency of Use				Mean	SD
	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)		
To what extent did you use the following personal communication methods to convey information to your Extension clientele group during the recent hurricanes?						
Face to face	7.7	20.7	29.3	34.1	3.0	.97
On-site visit	24.5	26.9	20.7	18.3	2.4	1.10
Telephone	10.6	19.2	27.4	34.1	2.9	1.00
Cell phone	30.8	22.6	19.2	17.3	2.3	1.10
Text messaging	81.3	2.4	1.4	0	1.1	.30
Electronic mail	29.8	27.4	20.7	11.1	2.2	1.00
Other	14.9	0.5	4.3	2.4	1.7	1.10
To what extent did your Extension office use the following communication sources/channels to convey information to the public during the recent hurricanes?						
Flyers, print materials	9.6	26.9	30.3	26.9	2.8	.97
Newspapers	16.3	30.8	26.9	17.8	2.5	.99
Radio public service announcements	46.2	20.7	17.3	5.8	1.8	.96
Live radio interviews	59.1	18.8	9.1	2.9	1.5	.80
TV public service announcements	61.5	16.8	8.2	2.4	1.5	.77
Live TV interviews	62.5	19.2	6.3	0.5	1.4	.64
Internet/Web	35.6	20.2	22.1	13.0	2.1	1.10
Other	17.8	3.4	5.8	4.8	1.9	1.20

As a front-line responder to the hurricanes of 2004, the role of Extension includes providing disaster-related information to those affected. As a result, a factor affecting job performance would be the ability of faculty to access local, state, federal, and other non-governmental agencies. As indicated in Table 4-12, the higher the calculated mean, the more the agency was used by Extension faculty during the hurricanes. For example, the three most used local agencies included County Emergency Management, Local/Regional Utilities, and the County Health Department. In terms of state agencies, UF/IFAS was used the most, followed by the Florida Department of Agriculture and Consumer Services: Division of Consumer Services, and, lastly, the Florida Department of Agriculture and Consumer Services: Division of Animal Industry. The Federal agencies most widely used included the United States Department of Agriculture: Farm Service Agency, National Hurricane Center, and FEMA. In addition, other non-governmental agencies that were used included the Red Cross and the Salvation Army.

Table 4-12. Most used local, state, and federal agencies by Extension faculty during the 2004 hurricane season (N=208).

Local Agency	Mean	SD
County Emergency Management	2.84	1.2
Local Utilities- Electric/Gas	1.81	1.0
County Health Department	1.78	1.0
Federal Agency	Mean	SD
Farm Service Agency	2.06	1.2
National Hurricane Center	1.83	1.2
FEMA	1.78	1.1
Other	Mean	SD
Red Cross	1.63	0.93
Salvation Army	1.30	0.65

In this study, indicators of job performance of faculty during the hurricane season included fulfillment of professional obligations and use of available resources.

Approximately one-third of the respondents reported that they were not at all affected by

their personal experiences during the 2004 hurricane season, while two-thirds indicated that they were to some extent. Resources available to faculty include *The Disaster Handbook*, mass media and communication channels, and other relief agencies and organizations. Overall, such resources were not utilized to a great extent by faculty.

Subsequent evaluation and learning

Crisis management literature also stresses the importance of evaluation and learning after the execution of the crisis plan. By conducting a post-crisis evaluation, the organization can determine the strengths and weaknesses of its actions, protocol, and resources. UF/IFAS Extension took some steps towards completing this. For example, as reported in Table 4-13, it was determined that half of the faculty surveyed preferred both formats of *The Disaster Handbook*. In addition, faculty were asked if they would utilize specially trained volunteers if they were made available to help with home and family issues during a future disaster so as to allow faculty to better focus on their Extension work with disaster victims. Approximately half of respondents reported that they would use such a resource from a moderate to great extent.

Table 4-13. Extension faculty preference of available disaster-related resources (N=168).

Resource	Frequency	%
Which format of <i>The Disaster Handbook</i> would you most likely use?		
Notebook (print) format	43	20.7
Web-based format	28	13.5
Both formats	97	46.6
If specially trained volunteers were available to help you with home and family issues in the immediate aftermath of a future disaster so that you could better focus on your Extension work with disaster victims, to what extent would you make use of these supports?		
Not at All		11.5
Slight Extent		30.3
Moderate Extent		32.2
Great Extent		16.8

In terms of Extension, it is also important during the evaluation phase to determine which media channels were most effective when used by faculty to communicate information to the public or clientele groups during the hurricane season. This will enable the organization to determine the best way to get information to those who need it. According to Table 4-14, it was found that the most widely used communication source or channels were flyers and other print material, followed by newspapers. In addition, the most effective personal communication method used to convey information to clientele groups included face to face meetings and the telephone.

Table 4-14. Extension faculty selection of most effective media channels used by faculty members to communicate information to the public or clientele during the hurricane (N=208).

Communication channels	Frequency	%
Of the communication sources/channels you used, which one was most effective in conveying information to the public during the recent hurricanes?		
Flyers and/or print material	49	23.6
Newspapers	45	21.6
Radio public service announcements	15	7.2
Live radio interviews	6	2.9
Internet/web	4	1.9
Other	26	12.5
No Response	63	30.3
Of the personal communication methods you used, which one was most effective in conveying information to your Extension clientele group during the recent hurricanes?		
Face to face	60	28.8
On-site visit	16	7.7
Telephone	59	28.4
Cell phone	14	6.7
Text messaging	1	0.5
Electronic mail	8	3.8
Other	11	5.3
No Response	39	18.8

In order to reach those in need of Extension's services during the hurricane season, the public and clientele need to be aware of the organizations efforts during such

disasters. According to Table 4-15, however, only a small percentage of faculty reported that the general public was moderately to greatly aware (25.9%). In addition, faculty reported that only a small percentage of their clientele group (13.9%) was greatly aware of Extension's efforts.

Table 4-15. Public and clientele awareness of Extension's efforts (N=208).

Variables	Frequency of Use				
	No Response	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)
To what extent do you believe the general public was aware of Extension's efforts during the recent hurricanes?	5.3	18.8	50.0	22.1	3.8
To what extent do you believe your Extension clientele group was aware of Extension's efforts during the recent hurricanes?	5.3	10.6	32.2	38.0	13.9

In addition, a relationship was found between the awareness of the public of Extension's efforts during the hurricanes and the awareness of Extension clientele groups towards Extension's recent efforts during the hurricanes, using Pearson's product-moment correlation (Table 4-16). The correlation value of .522 indicates that the more aware the clientele were, the more aware the general public was of Extension's efforts.

Table 4-16. Pearson's product-moment correlation of relationship between public awareness and clientele awareness of Extension's efforts during the hurricanes (N=196).

Variable	To what extent do you believe the general public was aware of Extension's efforts during the recent hurricanes?
To what extent do you believe your Extension clientele group was aware of Extension's efforts during the recent hurricanes?	.522*

*Statistically significant at .05 level.

During disasters, it is important that the public and clientele that are in need receive relevant information. However, only a small percentage of faculty reported that the general public and clientele groups were aware of their efforts during the 2004 hurricane season. A strong relationship was found between the awareness of the public of Extension's efforts and the awareness of clientele groups towards Extension's efforts during the hurricanes. According to respondents, the most effective method used to communicate information to the public was flyers and other print materials, while the most effective personal communication method was face to face visits.

Objective 1b: Determine the Personal Hardships of Extension Faculty during the 2004 Hurricane Season and the Role that Extension Could Play to Reduce These Hardships

It is critical as a front-line responding organization, that Extension faculty are able to perform their job and carry out the organizations goals to aid those in need. However, for some faculty that experienced personal hardships, such as damage to their homes, fulfilling their job expectations may have proved difficult. As a result, it was important to determine the extent to which they experienced personal hardships and stress and if they had support for their emotional and physical needs during this time.

Table 4-17. Extent to which faculty experienced personal hardships and stress (N=208).

Variable	Frequency of Use				
	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)
To what extent did you experience damage to your home or experience other personal hardships?	3.3	23.6	45.7	20.7	6.7
To what extent did you experience personal stress or emotional symptoms while involved in hurricane preparation and relief efforts?	3.8	12	38.5	36.1	9.6

As seen in Table 4-17, one quarter of respondents reported that they experienced damage to their home or other personal hardships from a moderate to great extent. In addition, as a result of the hurricane, nearly one in ten faculty members reported that they experienced personal stress or emotional symptoms. Although many did experience such hardships, about one in three respondents reported that they had support for their own emotional needs to a great extent. In addition, about half (48.6%) of Extension faculty reported having a source of support for their physical needs, such as shelter, food, water, or electricity, to a great extent, as evident in Table 4-18.

Table 4-18. Extent to which Extension faculty had support for their own emotional and physical needs (shelter, food, water, electricity) (N=208).

Variable	Frequency of Use				
	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)
To what extent did you have a source of support for your own emotional needs?	6.3	9.6	21.6	29.3	33.2
To what extent did you have a source of support for your own physical needs?	6.6	5.3	13.5	26.0	48.6

Overall, it was found that many respondents did experience damage to their home or other personal hardships as a result of the hurricanes to some extent, as well as experiencing personal stress. It was also reported that many had some sort of support for their emotional and physical needs during this time.

Objective 1c: Determine the Professional Hardships of Extension Faculty during the 2004 Hurricane Season and the Role that Extension Could Play to Reduce These Hardships

In addition to personal hardships, Extension faculty may have faced professional difficulties when trying to perform their job functions. For example, according to Table 4-19, the barrier that was reported to have gotten in the way of faculty utilizing certain

resources, such as *The Disaster Handbook* and “Triumph over Tragedy,” was they did not have time to access the materials. In addition, a second barrier was that faculty did not know that certain materials were available. Without electricity in many areas of Florida for weeks following the hurricanes, many did not have access to computers to be able to retrieve necessary documents and information.

Table 4-19. Extent to which the following barriers got in the way of faculty utilization of Extension resources following the hurricanes (N=208).

Barriers	Frequency of Use					Mean	SD
	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)		
Materials were located in the main office	18.7	57.7	12.0	5.3	6.3	1.51	0.92
Did not know that certain materials were available	15.4	35.1	22.1	15.9	11.5	2.05	1.1
Did not have time to access the materials	17.3	32.7	25.0	11.5	13.5	2.07	1.1
Did not know where to find materials	16.9	51.4	16.8	7.7	7.2	1.65	0.97
Materials were online and we did not have computer access	21.0	40.9	13.5	8.7	15.9	1.99	1.2

Table 4-20. Difficulty of Extension faculty to balance personal and professional needs (N=208).

	Frequency of Use				
	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)
To what extent was it difficult for you to balance personal and professional needs?	8.2	19.2	34.1	25.0	13.5

In addition to these barriers that contributed to the occurrence of professional hardships, approximately one in six (13.5%) members of Extension faculty reported that that it was

difficult, to a great extent, to balance personal and professional needs (Table 4-20).

Using a cross-tabulation (Table 4-21), of those respondents who reported that they experienced a high degree of personal stress or emotional symptoms, 16.3% reported a high level of difficulty in balancing personal and professional needs. Of those who reported a very high degree of personal stress, 4.7% reported a high level of difficulty in balancing personal and professional needs.

Table 4-21. Respondents who reported experiencing personal stress or emotional symptoms and who said it was difficult to balance personal and professional needs to a great extent (N=190)

Variable	Experienced Personal Stress or Emotional Symptoms				
		Low (%)	Medium (%)	High (%)	Very High (%)
Difficulty in balancing personal and professional needs	Low (%)	14 (7.4)	2 (1.1)	2 (1.1)	2 (1.1)
	Medium (%)	21 (11.1)	39 (20.5)	14 (7.4)	4 (2.1)
	High (%)	3 (1.6)	25 (13.2)	31 (16.3)	13 (6.8)
	Very High (%)	2 (1.1)	4 (2.1)	5 (2.6)	9 (4.7)

Objective 2: Determine if Needs Exist for Professional Development, Training, Curriculum, and Resources

In order to improve Extension's response to disasters in the future, it is critical that the potential needs of Extension faculty be examined. In addition, a response must be formulated to meet these needs. A valuable learning experience can result from the tragedy of the 2004 hurricane season. For example, Table 4-22 reports that faculty most need professional development in the area of hurricane disaster recovery followed by the application of their subject matter in disaster situations.

Table 4-22. Extension faculty need for professional development in the following areas in preparation for hurricanes and other emergency situations (N=208).

Professional Development Need	Frequency of Use					Mean	SD
	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)		
Hurricane disaster recovery	6.7	6.7	20.2	38	28.4	2.94	0.90
Applying my subject matter in disasters situations	6.3	14.4	24.5	30.3	24.5	2.69	1.0
Helping clientele cope with stress	6.3	11.5	30.3	35.1	16.8	2.61	0.92
Hurricane disaster preparedness	6.7	13.9	33.2	32.7	13.5	2.49	0.92
Helping coworkers cope with stress	6.3	14.9	34.6	33.2	11.1	2.43	0.90
Working with the media	6.7	21.1	28.4	30.3	13.5	2.39	0.99
Coping with personal stress	5.8	22.6	48.1	17.8	5.8	2.07	0.82
Personal needs (emotional and physical)	7.2	30.8	38.5	18.3	5.3	1.98	0.87

Table 4-23. Likelihood of faculty to attend or participate in the following training formats in preparation for hurricanes or other emergency situations (N=208).

Training Format	Frequency of Use					Mean	SD
	No Response (%)	Not at All (%)	Slight Extent (%)	Moderate Extent (%)	Great Extent (%)		
District meeting	4.8	4.8	11.5	25.5	53.4	3.34	0.88
Print materials	5.8	7.2	17.3	33.7	36.1	3.05	0.94
Web-based module/CDROM	6.7	14.4	23.1	27.9	27.9	2.74	1.1
Videoconference	6.7	16.8	31.7	25	19.7	2.51	1.1
Statewide conference	6.7	16.8	30.3	30.3	15.9	2.48	0.98
Telephone conference	6.7	23.1	31.3	22.1	16.8	2.35	1.0

It is also important to determine which type of training format was most preferred by faculty in Florida. Table 4-23 reports that district meetings represented the best method to reach faculty, followed by print materials.

Objective 3: Determine the Availability of a Crisis Management Plan to Guide Extension Faculty

A major publication concerning natural disasters from UF/IFAS is *The Disaster Handbook*. For Extension faculty and staff, this is the primary source of information concerning preparation, during, and recovery from natural and man-made disasters. *The Disaster Handbook* begins with introduction and resources, which provides suggestions on how to use the publication, including how to make information packets. In addition, it provides a listing of all the Cooperative Extension offices in the United States, as well as providing a list of national and state agencies and organizations that can provide aid during a disaster. In essence, *The Disaster Handbook* was designed for national distribution and not localized to any particular state.

The next two chapters of the handbook deal with disaster preparation and what to do during the disaster. In chapter 2, Disaster Preparation, it focuses on planning prior to the onset of a disaster. For example, it provides background information on severe weather terms, identifying potential home hazards, and how to prepare for the elderly, disabled, and pets. In addition, it discusses emergency management for businesses and industry.

Beginning in chapter 3, disaster recovery is covered. Specifically in chapter three, how to safely evacuate in the event of a disaster is stressed. In addition, the role of government during a disaster is outlined, how community leaders can work with local emergency government, and what disaster assistance programs are available. In chapter

4, safety rules and recovery procedures, as well as emotional recovery, are emphasized. Concerns after a disaster also included are emergency food and water, health and sanitation issues, as well as problems dealing with wildlife and pests. Lastly, community recovery is touched upon, explaining how to rebuild communities from a physical as well as economic standpoint. Chapter 5 details recovery specifically to home clean-up and repair, including checking for building damage, roof repairs, and yard clean-up. In relation to the interior of a home, it provides information on cleaning and electrical systems and appliances. The next chapter deals with recovery specifically to farms, such as salvaging crops, feed, and grain. In addition, it discusses livestock and poultry and the health threats that may occur as a result of flooding.

The second volume of *The Disaster Handbook* deals with specific disasters, such as hurricanes, lightning, floods, tornadoes, hazardous materials, radiological accidents, residential or farm fires, wild land fires, terrorism, extreme heat and drought, extreme cold and winter storms, and earthquakes. Each of these chapters provides background information and a fact sheet on that specific type of disaster. In addition, it discusses how to prepare for the disaster and safety issues that may be of concern. Lastly, the publication provides radio spots on an array of disaster-related topics, as well as information on stress and coping. As evident, *The Disaster Handbook* guides Extension on what information to provide to the public and clientele groups, but it does not offer guidance on the roles and job expectation of faculty, or contact information for emergency personnel. Nor does the publication provide state or local information and contacts.

In contrast, the essential elements of a crisis management plan are as follows

- **Rehearsal Dates:** These are dates in which the crisis management plan was practiced. It is a means in which to ensure that the document, as well as the crisis team, is accurate and current. However there was no calling for rehearsals in *The Disaster Handbook*.
- **Crisis Management Team (CMT):** This section identifies who is in charge of the team, as well as how to contact them, how to begin putting the plan into action, and when the plan should be activated, such as what denotes a crisis. The crisis management team represents the beginning of the crisis management process. This is loosely covered in *The Disaster Handbook* but does not list specific names or phone numbers.
- **Crisis Management Team Contact Sheet:** This section lists all the members of the crisis management team, their complete contact information, their areas of knowledge, and any outside people that may be needed, such those involved in emergency or insurance response. *The Disaster Handbook* lists the Extension directors for each state Extension service and national and state agencies and organizations that are responsible for crisis information and support services, but it does not indicate other specific members of the crisis management team in each state or their responsibilities in times of crisis. *The Disaster Handbook* lacks the creation of a specific group of crisis management team members for the state of Florida.
- **Crisis Risk Assessment:** This section identifies all the possible crises that an organization may encounter, determines the probability that each will occur, and identifies damage that will ensue, including financial, structural, environmental, reputational, or human repercussions. This information is included in *The Disaster Handbook*.
- **Incident Report:** In this section, the actions taken during a crisis by the CMT are recorded, which is to be used during the evaluation phase. Specifically, it denotes when the situation was first discovered, where it occurred, and when people and other organizations were made aware of the crisis. The incident report is not included in *The Disaster Handbook*.
- **Proprietary Information:** Although it is important for crisis managers to fully disclose all information to the organizational stakeholders, some information must be kept confidential until it is reviewed by the head of the organization or legal council. This caution is not included in *The Disaster Handbook*.
- **CMT Strategy Worksheet:** This section relates to crisis communication, such that the crisis manager must record what message was sent, what audience it was sent to, and the goal of the communication or message. It serves to remind the organization that communication is strategic, such that it serves a distinct purpose, especially during a time of crisis. This is not included in *The Disaster Handbook*.

- **Secondary Contact Sheet:** This section identifies additional stakeholders who may need to be contacted in the event of a crisis, as they will be able to provide information that the organization needs. The secondary contact sheet identifies the stakeholders who are to be contacted and who is supposed to contact them. Aspects of this section are included in *The Disaster Handbook*, as it lists organizations and agencies that may be of aid to the Extension organization during times of disaster.
- **Stakeholder Contact Worksheet:** Because different stakeholders, including the media, will contact the organization during a crisis, this section deals with the procedures to be taken when a call is received. For example, it dictated who contacted the organization, the information requested, and the organizational response. This is not included in *The Disaster Handbook* and may explain the low usage of media to convey efforts of Extension during the hurricanes.
- **Business Resumption Plan:** Because an organization may suffer damage to facilities or equipment during a crisis, this section details procedure to follow if this does occur, so that the organization can resume operation. Although not included in its entirety, many aspects of the business resumption plan are included in **The Disaster Handbook**.
- **Crisis Control Center:** This section deals with where team members must meet in the event of a crisis. This is not included in *The Disaster Handbook* and proved to be a major problem during the hurricanes.
- **Post-crisis Evaluation:** After a crisis is over, this section provides the team with a means in which to evaluate their effort during the crisis, primarily focusing on the communication efforts. In addition, it provides an opportunity to correct weaknesses of the plan as well as maintain its strengths. A post-crisis evaluation is not included in *The Disaster Handbook*.

The Disaster Handbook is loosely organized based upon the three stages of crisis management, including pre-crisis, crisis, and post-crisis. The publication discusses how to prepare for disasters, what do to during the disaster, and how to recover. In addition, it discusses these elements according to specific disasters that Florida may be subject to, such as hurricanes, floods, and wild land fires. However, the publication does lack certain criteria that would constitute it as a crisis management plan. It is primarily a source of information for preparing the public and clientele in the time of a disaster, as

opposed to how to prepare the Extension organization for a crisis. As a result, it includes crisis management information that is external to the Extension organization.

Certain variations of the criteria of the crisis management plan are included in *The Disaster Handbook* but are often not exactly as specified. For example, elements of the crisis management plan that are included in *The Disaster Handbook* are the crisis management team, crisis risk assessment, the business resumption plan, and contact information for stakeholders. *The Disaster Handbook* does list who the Extension directors are for each state Extension service, but it does not indicate other specific members of the crisis management team in each state or their responsibilities in times of crisis. In addition, as *The Disaster Handbook* was published in 1998, it contains outdated contact information. *The Disaster Handbook* does include national and state agencies and organizations that are responsible for crisis information and support services pertaining to such topics as, recovering from a disaster, disaster preparation, farmers, FEMA, specific disasters, general assistance, and religious and community service organizations. Although this information can be considered to be a part of the crisis management team, the handbook lacks the creation of a specific group of crisis management team members for the state of Florida. Those agencies listed could provide assistance to the crisis management efforts by Extension in Florida, but they would primarily serve to aid the public in times of disaster.

Another element that is included in *The Disaster Handbook* is crisis risk assessment. For example, it does provide information on disasters that Florida and the Extension organization may be susceptible to and the damage that will ensue, including lightning, floods, tornadoes, hazardous materials, radiological accidents, residential or

farm fires, wild land fires, terrorism, and extreme heat and drought. However, this vague crisis risk assessment appears to be inadvertently created and does not identify the probability that each crisis will occur. In addition, the information pertaining to each disaster in terms of preparation and recovery is external to the Extension organization as it focuses on the general Florida population.

In addition, parts of the handbook relate to the crisis management team strategy worksheet. The worksheet relates to crisis communication, such that the crisis manager must record what message was sent, what audience it was sent to, and the goal of the communication or message. Although the publication lacks a specific CMT strategy worksheet, it does discuss crisis communication in a general sense. For example, the handbook provides information to be sent to the public and clientele. Lastly, a major element that is included in *The Disaster Handbook* is a business resumption plan. Although, the information contained in this section is organized according to crisis management literature, it is aimed at aiding small businesses in preparing for and recovering from disasters, rather than Extension Service in Florida.

There are also several elements of the crisis management plan that are not included in *The Disaster Handbook* in any form or variation. For example, there are no rehearsal dates, incident report or proprietary information, identification of a crisis control center, or post-crisis evaluation. Rehearsal dates refer to dates in which the crisis management plan was practiced. As a result, there is a lack of opportunity to evaluate the plan and make changes to improve it for future simulated or actual disasters. As of yet, no post-evaluation changes have been made following the 2004 hurricane season. The incident report refers to when the actions taken during a crisis by the crisis management team are

recorded. Similar to having rehearsals, this section aids the organization in evaluating its crisis management efforts. In terms of the proprietary information, it is important for crisis managers to fully disclose all information to the organizational stakeholders. However, this section is not included in *The Disaster Handbook*.

Other major aspects of the CMP that are not included in *The Disaster Handbook* are the specification of a crisis control center and a post-crisis evaluation. The crisis control center is important such that it provides a central meeting point for the crisis management team. In addition, the post-crisis evaluation provides an opportunity for the CMT to identify weaknesses in the crisis response effort.

Although *The Disaster Handbook* is composed of disaster-related information needed by Florida residents, it does not represent a crisis management plan. It provides information that would affect those external to Extension, rather than providing a means in which to deal with a crisis that affects Extension directly.

Population Study

The largest response came from Extension faculty having the highest rank of IV (23.9%) and the lowest came from faculty in the middle ranks of II (17.3%) and III (18.3%). The remaining respondents were Extension program assistants (1%) and County Extension Directors (19%). In regards to District Extension Directors, two of the five responded.

Respondents were also asked to indicate their primary program area. It was found that the primary program areas of the respondents were as follows: agriculture/natural resources, 23%; community development, 1%; family and consumer sciences, 24%; 4-H/youth development, 19%; Sea Grant/aquaculture, 4%; ornamental/environmental

horticulture, 11%; urban horticulture (including Master Gardener), 8%; commercial horticulture (including vegetables, citrus, and forestry), 4%; and other, 6%.

Table 4-24. Demographic information of respondents (N=208).

Variable	Frequency	%
Extension Rank		
Extension Agent I	44	21.2
Extension Agent II	33	15.9
Extension Agent III	33	15.9
Extension Agent IV	47	22.6
Courtesy Extension Agent I	8	3.8
Courtesy Extension Agent II	3	1.4
Courtesy Extension Agent III	5	2.4
Courtesy Extension Agent IV	13	6.3
Extension Program Assistant	1	0.5
Other	4	1.9
County Extension Director	39	18.8
District Extension Director	2	1.0
Primary Program Area		
Agriculture/Natural Resources	45	21.6
Community Development	2	1.0
Family and Consumer Sciences (including FNP/EFNEP)	46	22.1
4-H/Youth Development	37	17.8
Sea Grant/Aquaculture	8	3.8
Ornamental/Environmental Horticulture	21	10.1
Urban Horticulture (including Master Gardener)	16	7.7
Commercial Horticulture (vegetables, citrus, forestry)	8	3.8
Other	11	5.3
Gender		
Male	70	33.7
Female	114	54.8
Ethnicity		
African-American	5	2.4
Asian-American	0	0
Caucasian	166	79.8
Hispanic/Latino	3	1.4
Native American	3	1.4
Other	7	3.4

In addition, it was found that 38% of the respondents were male (70) and 62% (114) were female (Table 4-24). The majority of survey respondents were Caucasian (90%), followed by African-American, 2.7%; Hispanic/Latino, 1.6%; Native American,

1.6%; and other, 4.1%. The years of experience with the Cooperative Extension Service ranged from less than a year to over 35 years (Irani, Kistler, Telg, & Place, 2005, p. 2). A response was received from 63 of Florida's 67 counties².

Summary

The goal of the study was to ascertain how ready UF/IFAS Extension faculty were to serve as front-line responders in the preparation and recovery from the 2004 hurricane season. In addition, the study was conducted to determine how prepared agents were to deal with professional demands, job expectations and clientele demands, while coping with personal hardships as a result of the hurricanes.

The study was aimed at determining how well Extension carried out its responsibilities as a front-line responder. This was determined by the readiness of Extension faculty to serve as front-line responders during the 2004 hurricane season, as well as by the identification of personal and professional hardships experienced by faculty. Secondly, the study served to identify needs for professional development, training, curriculum, and resources in regards to future natural disasters on the part of Extension faculty. Lastly, the study sought to determine the availability of a crisis management plan to guide Extension faculty.

In terms of preparation, faculty were generally unprepared to serve as front-line responders, as indicated by several factors. It was found that as level of trainings on *The Disaster Handbook* increased, the use of it increased as well. However, most had not received any training on the use of *The Disaster Handbook*. In addition, it was determined that few reported being well prepared to address the professional challenges

² No faculty member from Hamilton, Gilchrist, Bradford, and Marion Counties responded.

they faced. Preparation did increase though, as the amount of experience within the Florida Cooperative Extension Service increased.

Communication during disasters is essential, as more heavily used methods, such as email and telephones, may be unavailable. However, in general, faculty and local extension offices did not use mass media channels to communicate during the hurricanes to a great extent. However, it was found that high levels of faculty use of mass media channels are associated with high levels of that of the Extension office. In terms of personal communication channels, faculty most often used face to face visits and Extension offices used fliers and other print materials.

Most respondents did experience some sort of personal hardships, such as damage to their home, whether to a slight to great extent. However, one in three did report that they had support for their emotional needs and about half for their physical needs. Many reported that they turned to family, friends, and coworkers for support for their emotional and physical needs. Professionally, barriers that existed for faculty during this time were generally as a result of a lack of knowledge concerning the availability of resources or a loss of access to certain materials, often due to a lack of electricity.

As Florida continues to be affected by natural disasters in particular, a continuous need exists for professional development, training, curriculum, and resources for the future. The greatest need for professional development exists in hurricane disaster recovery, followed closely by the application of subject matter in disaster situations. The best format in which to deliver such information is by district meeting, followed by print materials.

Those that responded the most were faculty with the ranking IV, with a primary program area of family and consumer sciences or agriculture/natural resources. Over half of the respondents were female and the majority were Caucasian.

CHAPTER 5 SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

When a disaster is threatening the state of Florida, the Florida Cooperative Extension Service (FCES) is called upon as a support agency to the Florida Department of Agriculture and Consumer Services. Under Emergency Support Function 17, CES serves to educate commercial and non-commercial pet and livestock owners on how to safely care for their animals during emergency situations as well as providing them with food, water, and power. In addition to providing such information, FCES aids Florida residents in times of disaster by being a source of research-based information concerning disaster preparation, what to do during a disaster, and recovery from disasters. For example, information is available on disaster supplies kits, handling stress, emergency evacuation, and insect control.

The purpose of this study was to determine the readiness on the part of UF/IFAS Extension faculty to serve as front-line responders in the preparation and recovery from the 2004 hurricane season. In addition, the study was conducted to determine how well agents were prepared to deal with professional demands, job expectations and clientele demands, while coping with personal hardships as a result of the hurricanes. A third purpose was to discern the availability of a crisis management plan to guide Extension faculty on internal, communications, roles, and responsibilities.

This study was based upon the crisis management model of Coombs (1999), which states that crisis management:

represents a set of factors designed to combat crises and lessen the actual damage inflicted by a crisis. Put another way, crisis management seeks to prevent or lessen the negative outcomes of a crisis and thereby protect the organization, stakeholders, and/or industry from damage. (p. 4)

Crisis management is comprised of four phases including prevention, preparation, performance, and learning (Coombs, 1999, p. 4). An important aspect of the preparation phase is the crisis management plan (CMP), which allows an organization to respond efficiently and effectively in the event that a crisis occurs (Coombs, 1999, p. 79).

Data was returned from 63.41% of the population, which consisted of University of Florida/IFAS county and district Extension faculty.

Procedure

The survey was sent to all county and district Extension faculty, which was obtained from UF/IFAS, with viable email addresses as of October 2004. The original list of Extension faculty consisted of 332 names and after making corrections for incorrect addresses and retirements, the final list of faculty surveyed consisted of 328 participants. The overall response rate consisted of 208 out of 328 (63.41% response rate). Through cooperation with Extension Disaster Education Network (EDEN) faculty at Purdue University, the survey was made available on the web through Zoomerang software (Appendix A). A pre-notice letter was sent to all county Extension faculty and District Extension Directors on November 30, 2004 by email (Appendix B). Sent by Extension Dean Larry Arrington, the goal of the email was to inform potential respondents of the forthcoming questionnaire and to encourage their participation. Several days after the email from Dr. Arrington, a second email was sent to all Extension

faculty from the researchers in the department of Agricultural Education and Communication (Appendix C). This email consisted of an overview of the study, as well as a link to the web-based questionnaire. Finally, two waves of follow-up were sent (December 9 and 20, 2004) to encourage non-respondents to complete the questionnaire. The link to the survey was closed on January 5, 2005, which prevented any new responses.

Preparation of Extension Faculty as Front-Line Responders

One objective of the study was to determine how well the Cooperative Extension Service carried out its responsibilities as front-line responders.. As part of this objective, the readiness of Extension faculty to serve as front-line responders during the 2004 hurricane season was examined--specifically preparation, performance, and subsequent evaluation or learning.

Professional Challenges

Preparation was measured by how well faculty were able to address the professional challenges they faced. Interestingly, only a very small percentage of respondents indicated that they felt very prepared to deal with professional challenges and the emotional symptoms exhibited by clientele after the hurricanes. Again, this indicates that there is a lack of training being offered on disaster-related issues, where to find necessary information, as well as the establishment of a chain of command in FCES during disasters where faculty could go for advice and counsel. Through correlational research, it was found that preparation to address the professional challenges faced by faculty increases, preparation to address the stress and emotional symptoms exhibited by clientele increases as well. Thus, it would seem that if faculty feel prepared to meet their job expectations and perform their jobs well during disasters, they have the confidence

that they will be able to deal with added responsibility of dealing with abnormal clientele demands. Although Extension faculty are not in the business of mental health, it is important to remember that they are on the front lines of disaster response, dealing with clientele on a close basis. It is important for faculty to know basic techniques in dealing with such demands and where to refer clientele.

Through correlation analysis, it was found that faculty preparation was associated with more years of experiences within the Florida Cooperative Extension Service. As faculty gain experience in their position, they acquire skills, knowledge, and outside contacts and resources that aid them when dealing with disaster situations. A knowledge base is built as an agent deals with a variety of situations, which one cannot gain directly through training alone. Mentoring by more experienced faculty could prove beneficial for newer faculty.

Faculty was asked in the survey to list the three greatest professional challenges they faced as a result of the 2004 hurricanes. Some of the major emerging themes from this question, included (a) that it was difficult to find needed information quickly in *The Disaster Handbook*, and that it could have been out of date (b) lack of a plan dictating assisting clientele and what assistance was needed by the public, (c) lack of expectations in terms of what faculty were supposed to be doing in the disaster relief effort, and (d) lack of coordination in the Extension hierarchy and those who make decisions. Many of these issues could have been more adequately addressed through a known, established crisis management plan for the entire Extension organization. Faculty would know what they were supposed to be doing during times of disaster, who to turn to for direction, and how to help their clientele groups and the general public.

Resource Awareness

A major part of faculty preparation when dealing with natural and man-made disasters is being familiar with resources that are available including *The Disaster Handbook*. It was found that most faculty knew that their office had a copy of the publication and its location. However, a large percentage of respondents had neither reviewed the publication prior to the start of the 2004 hurricane season nor had received training on its use. In addition, a positive relationship was found between faculty use of the publication and training. This indicates that the handbook may be overlooked as a source of valuable information for clientele groups and the public during disasters by Extension faculty. In addition, if faculty are trained on how to use *The Disaster Handbook*, they will be more likely to refer to it during disasters.

Communications Planning and Challenges

When a disaster does occur, it is necessary for faculty to manage communication efforts so as to disseminate crisis-related information to those who need it. Included in this is having internal and external plans. Approximately three-quarters of the respondents knew that their Extension office had an internal plan to manage communication efforts during times of disaster. Conversely, about half reported that their office had an external plan. Overall, this indicates that faculty are aware of how to manage communication efforts internally but are less knowledgeable about external communications. This may be due to the lack of hierarchy within Extension during crises and a concrete crisis management protocol with only *The Disaster Handbook* as a reference. Faculty may not know who makes decisions during crises and how they are supposed to reach those the decisions affect.

Overall, it is suggested from this study that FCES faculty were not well prepared to deal with their demands as front-line responders. Not only were most not well-prepared to deal with professional challenges they faced, they also were not trained on using resources such as *The Disaster Handbook*, that could have helped during this time. As evident from the lack of preparation and their limited knowledge on crisis management protocol, it is evident that a gap exists between Extension faculty and those making decisions concerning disaster response at the administrative level. This may be due to the idea of risk perception, as faculty perceive themselves to be in more imminent danger as a result of the hurricanes. As “experts,” Extension administrators see the quantitative, hazard side of the crises created by the hurricanes, while faculty at the county level must deal with the emotional, and less predictable, side of the risk.

Job Performance of Extension Faculty as Front-Line Responders

The individual job performance of faculty directly affects the overall response effort of the Extension organization. In this study, job performance was characterized by how well they fulfilled their professional obligations and use of available resources such as “*The Disaster Handbook*,” communication channels, and use of local, state, and federal agencies. It was found that the job performance (i.e. difficulty concentrating or missing work) of faculty was not greatly affected by the personal experience, such as if their house was damaged. Nearly two-thirds of respondents reported their job performance was affected to some extent by their personal experience.

Over half of respondents (60.1%) indicated they had referred to *The Disaster Handbook* during the hurricane season or for another disaster during in 2004. Although this does indicate that the publication is being used, the lack of training being offered to

faculty suggests that they had to become familiar with its contents during the crisis situation and it may not be utilized to its fullest potential.

Another resource used to convey crisis information to the public and clientele groups is mass media. By fully using mass media channels, faculty can increase the chances that they are getting pertinent information to those who need it. This study found that few agents and offices are actually using such channels to convey information. However, it was found that as mass media channels use increases by an Extension office, that use increases by individual faculty. Faculty may not be aware of how to use such a resource until the office as a whole or another agent in their office uses it. Other personal communication methods were utilized by faculty to convey information to the public and clientele groups, with the most highly used being face to face visits. Extension offices most often used flyers or other print materials. The most widely used communication channel used by Extension offices to transmit information to the public included fliers and other print materials.

According to program area, it was found that agriculture and natural resource faculty primarily used the personal communication methods of face to face and on-site visits to a great extent, more than any other program area. However, family and consumer science agents used the telephone to a greater extent, while 4-H agents used electronic mail to a great extent. Horticulture faculty also utilized face to face communication and on-site visits to a great extent (Muegge, 2005). In terms of communication channels, either mass media or personal, it appears that faculty are not using the appropriate channels to get critical information to those who need it.

Effectiveness of their role as a front-line responder could be enhanced by attempting to further use available channels.

There also was a significant lack of resource utilization by faculty in terms of accessing local, state, federal, and non-governmental agencies and organizations. The most utilized included (a) County Emergency Management (local), (b) UF/IFAS (state), (c) US Department of Agriculture: Farm Service Agency (federal), and (d) Salvation Army (non-governmental). However, few organizations were utilized to a great extent and many faculty members did not use some organizations at all, such as the UF Health Sciences Center. Listing agencies that can be used as resources, *The Disaster Handbook* may not be very complete, or to a lack of training on its use, faculty may not be aware that the publication provides names of available organizations. In addition, agencies that were not utilized a great deal may be doing a poor job of making their presence known as part of the disaster support system for Extension, through publications and advertising. However, faculty did recognize the importance of cooperation among organizations and agencies that are expected to conduct disaster relief. As one respondent stated, professional needs included “working with other agencies and commodity groups in a consistent and unified way for the benefit of our mutual clientele.”

Although job performance was not directly measured in terms of its affect on clientele and the public during the 2004 hurricane season, the indicator referred to in this study revealed that faculty performance was moderate. There was a general lack of utilization of resources, whether they be communication channels or available organizations. Because this was a general trend, it indicates that there is a lack of knowledge as to how to effectively integrate the aid of other agencies involved in disaster

relief and how to effectively get information to everyone that needs it. Aiding the public during disasters would be a beneficial time for the Florida Cooperative Extension System to make its presence known among the population as a source of knowledge and information on an array of topics.

Learning and Post-crisis Evaluation

Evaluation must be conducted after a crisis occurs because it is imperative that the organization determine its strengths and weaknesses so as to improve its response in the future. Aspects of this assessment were conducted by FCES. For example, it was determined that about half of respondents would use either the print or web-based format of *The Disaster Handbook*, followed by the print version only. This makes sense as some respondents reported that they did not have electricity and could not access the web version. In addition, four out of five respondents indicated that they would utilize the help of specially trained volunteers if they were made available to help with home and family issues after a disasters so that they could better focus on their work with Extension and its aid to disaster victims.

Communication channels were evaluated to determine which ones were deemed most effective by faculty in getting information to the public or clientele groups. The most effective communication channel to get information to the public during the hurricanes was flyers and other print material. In addition, the most effective personal communication method for clientele was face to face visits. However, only a small percentage of faculty reported that the general public and clientele groups were greatly aware of Extension's effort. This indicates that the most effective communication channels, as perceived by faculty, may not be truly the best method to get information out. If people are not receiving important disaster information and are not aware of the

efforts of Extension, then those communication channels are not reaching the entire population in need. Faculty may deem these as the most effective simply because they are not familiar with the other communication methods. In addition, it was found that high levels of awareness of the efforts of Extension by the public are associated with high levels of clientele awareness.

There is an overall lack of non-biased post-crisis evaluation and assessment of effective mass and personal communication channels for the general public and clientele groups. The research-based information and the services that are offered by FCES can not be made available to the public unless there are means in which to get it to them in times of disaster. The current lines of communication between the local extension office and the public were not adequate to deal with crisis situations.

Personal Hardships of Extension Front-Line Responders

For some faculty that experienced personal hardships such as damage to their homes, fulfilling their job expectations may have proved difficult. It was found that nearly one-fourth of the respondents experienced moderate to great damage to their home or other personal hardships. In addition, nearly one in ten faculty members reported that they experienced personal stress or emotional symptoms as a result of the hurricane. However, respondents also indicated that they had significant sources of support for their emotional and physical needs, such as shelter, food, water, and electricity. As previously discussed, faculty said that their job performance, such as difficulty concentrating or missing work, was not greatly affected by their personal experience. The fact that support systems were in place may have served to significantly reduce the effect that personal hardships played in the lives of faculty. Respondents indicated that their emotional and physical needs were supported primarily by family, friends, neighbors, and

other Extension coworkers. However, the Extension organization does need to be aware that there may be faculty that do not have these supports available to them. Considering this, Extension should make supports available, such as places to stay for the duration for faculty and crisis counselors. This is especially important if local Extension offices are requiring their employees to aid in the disaster preparation and recovery.

Professional Hardships of Extension Front-Line Responders

Although the personal experience of respondents may not have directly affected their professional obligations, approximately one in six indicated that it was very difficult to balance their professional and personal needs. For example, some faculty stated that it was difficult for them to adequately prepare their home and family for the hurricanes and clean up afterward when they were required to be at the office. In addition, many found it difficult to leave their families, including small children, to aid the public disaster relief efforts. As one responder said, “it is the greater good of the many.” Of those respondents who reported that they experienced a high degree of personal stress or emotional symptoms, 16.3% reported a high level of difficulty in balancing personal and professional needs. Similarly, of those who reported a very high degree of personal stress, 4.7% reported a high level of difficulty in balancing personal and professional needs. A lack of clear expectations of faculty during disasters made fulfilling professional obligations and aid in relief efforts more difficult.

In addition, barriers existed that prevented faculty from utilizing certain resources such as *The Disaster Handbook* and “Triumph over Tragedy.” Some faculty reported that the greatest barrier was that they did not have time to access materials. Others reported that they did not know that certain materials were available. Although materials were online, many did not have computer access, suggesting that online viewing during

times of crisis may not be a viable option. This indicates poor preparation on the part of both the agent and administrators. Not having time to access materials could be a signal that available materials are not in a readily usable format in a crisis. Lack of knowledge concerning the availability of certain materials would indicate a need for training and update reminders prior to and during hurricane season. Living in Florida, hurricanes and other natural disasters are a constant threat. As a result, it is necessary for faculty to prepare prior to a disaster and have materials available on the web and in paper forms.

The fact that barriers exist preventing faculty from effectively utilizing available resources is related to socio-technical systems. The socio, or workforce, aspect is not accurately fitting with the technological element, or the crisis management protocol. As a result, the Extension organization is not effectively able to deal with the crises that occurred from the hurricanes. In sum, it would seem that many of the issues could have been remedied by everyone having a clear understanding of what was expected from faculty, supervisors, and administration.

Professional Development Needs

In order to improve Extension's response to disasters in the future, it is critical that potential needs of Extension faculty be examined. In addition, a response must be formulated to meet those needs. This study found that the greatest need of faculty was for professional development or training in hurricane disaster recovery, followed by applying subject matter in disaster situations, and helping clientele to cope with stress. Faculty favored receiving such training via district meetings, followed by print materials and a web-based module/CD-ROM.

The Disaster Handbook

For Extension faculty and staff, *The Disaster Handbook* is the primary source of information concerning preparation, during, and recovery from natural and man-made disasters. However, its focus is on preparing the public and clientele in the time of a disaster, as opposed to preparing the Extension organization for a crisis. As a result, it includes crisis management information that is external to the Extension organization and does not address internal issues such as stress management for Extension faculty, balancing work, and family, and hurricane impact on job responsibilities.

By comparing the publication to the elements of Coombs' (1999) crisis management plan, it was found that some areas are included in the handbook, but are not in the recommended format, while other areas are not included in the handbook at all. For example, the following elements of the crisis management plan are included in "*The Disaster Handbook*," in some aspect: (a) crisis management team, (b) crisis risk assessment, (c) business resumption plan, and (d) contact information for stakeholders. Although these elements of the crisis management plan are included in the publication, they are often included only in part. In addition, even though these elements are included, they do not serve to help the Extension organization itself in dealing with crises. Rather, the goal of the information contained in the publication is to aid the general public and clientele groups in dealing with disaster preparation and recovery.

Elements of crisis management that are not included in the handbook include (a) rehearsal dates, (b) incident report or proprietary information, (c) identification of a crisis control center, or (d) post-crisis evaluation. Without opportunities to practice the crisis management plan, there is no way to evaluate the plan and make changes to improve it

for future disasters. Nor are faculty as well-prepared for a crisis as they could be had they practiced.

As a result, there is limited use of *The Disaster Handbook* in terms of implementation as a crisis management plan. Although a source of solid, disaster-related information for the public, it does little in terms of directing faculty serving as front-line responders. It does not provide faculty, specifically those working in county offices, with any guidance in regard to their role and job expectations.

Population Study

The largest response was from faculty categorized as Extension Agent IV. In addition, the most highly represented primary program area was family and consumer sciences. The majority of respondents were also female and Caucasian. Faculty from every county responded except four-- Hamilton, Gilchrist, Bradford, and Marion.

Implications and Recommendations

The following is a list of implications and recommendations for the Extension organization, Extension administrators, and county faculty, who participated in this study.

Create a Detailed, Comprehensive Statewide Crisis Management Plan

Although this survey focused on several different areas concerning crisis management, one main issue that continuously emerged from both quantitative and qualitative analysis was a lack of a detailed, comprehensive statewide crisis management plan for Florida. The main source of crisis related information for faculty came from “*The Disaster Handbook*,” which was found to be both outdated and provided limited information for faculty on dealing with organizational issues created by the hurricanes. Because little information was available on the chain of command during crises or their job expectations, there was not an organized plan of response. By creating a crisis

management plan, Extension could produce a coordinated, effective response, without overlapping or omitting duties. In addition, this would aid Extension at the county level to produce a plan that works in concord with the statewide plan, adapted for their specific county needs (i.e. are they a coastal or inland county?).

Having a crisis management plan in place prior to the onset of a disaster would enable front-line responders in Extension to recover more quickly. In 2004, Florida was struck by consecutive hurricanes, without much time to recover and regroup before the next storm was threatening the state. As a result, Extension, as well as the rest of the population, was struck again and again when they were weakest. Disaster response and recovery would be more effective if a plan was in place.

Train Faculty as Front-Line Responders

In conjunction with a lack of a comprehensive crisis management plan, faculty lack knowledge as to what their specific roles are as front-line responders. In addition, they do not know what their job expectations are during crises, as planned programs are cancelled and their attention is often shifted to aiding the larger population of disaster victims. Faculty often did not know who to turn to, as there is no established chain of command in disaster situations in Florida. As a result, the public suffers as faculty do not know how to coordinate a response, such as preparing hard copies of necessary publications in the event of loss of electricity.

Create Awareness and Conduct Training Sessions

Although not due to a lack of effort, many Extension faculty were not acting as front-line responders. This was due primarily to a lack of awareness as to what disaster-related resources were available to support their efforts. For example, many were not very familiar with nor received training on *The Disaster Handbook*, which is their

primary source of information during the hurricane crisis. In addition, faculty made limited use of communications channels to disseminate needed information to clientele groups and to the general public. It is imperative that faculty know what governmental and non-governmental agencies and organizations are available to provide information and support to the public. For example, although not trained to do so as front-line responders, faculty are often dealing directly with the public and clientele who may be suffering from stress and emotional symptoms following the onset of the disaster. Faculty need to know what organizations they should refer such people to. By creating awareness of and specific trainings on external resource use, a coordinated response can be created through the collaboration of various disaster response organizations.

One of the objectives of this study was to identify professional development needs that Extension faculty had during the hurricanes. The greatest need of faculty was for professional development or training in hurricane disaster recovery, followed by applying subject matter in disaster situations, and helping clientele to cope with stress. Other areas that were identified as important are (a) hurricane disaster preparedness, (b) helping coworkers deal with stress, (c) working with the media, and (d) coping with personal stress. It is imperative that the Extension organization address these needs of faculty through trainings formats that were requested, such as through district meetings or print materials.

Provide Organizational Support for Personal and Professional Hardships

Many respondents reported that they were able to rely upon family, friends, neighbors, and coworkers during the stressful time of a disaster to aid their emotional and physical needs. However, some faculty may not have this advantage. In addition, many faculty were expected to report to their office in the immediate aftermath of each of the

hurricanes. If the Extension organization is going to require this from its faculty, they should provide reasonable support for the basic personal and professional needs that faculty have. For example, mental health counselors may need to be provided for those faculty having trouble coping and facilities for those without electricity to bathe and cook.

Conclusion

Generally, there is a serious lack of understanding and knowledge as to what the role of Extension is during disaster relief. As one respondent stated, “Extension can not and should not be expected to be all things to all people. Our responsibility is to train the trainers who are already employed to provide direct service. This will require administrative leadership, vision, and relationship building at the county, state and federal levels to identify and fill the specialized gaps in what is currently being done. This should only be undertaken with additional resources, deletion of lower priority activities and the reasonable assumption that appropriate credit and therefore stabilization of base funding can be attained. Otherwise, we risk the bird in the hand.”

APPENDIX A SURVEY RESULTS


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Survey Results

INDIVIDUAL RESPONSES →

Front-Line Disaster Responders: The Needs of Florida's County Extension Professionals

Report created on: Tuesday, December 20, 2005 10:54:00 AM
Tuesday, December 20, 2005 10:54:00 AM

Please answer the following questions based on your experiences during the 2004 hurricane season.

Extension Faculty Personal Needs

	Number of Responses	Response Ratio
1. To what extent did you experience damage to your home or experience other personal hardships?		
Not at All 	49	24%
Slight Extent 	95	47%
Moderate Extent 	43	21%
Great Extent 	14	7%
Total	201	100%

	Number of Responses	Response Ratio
2. To what extent did you experience personal stress or emotional symptoms while involved in hurricane preparation and relief efforts?		
Not at All 	25	13%
Slight Extent 	80	40%
Moderate Extent 	75	38%
Great Extent 	20	10%
Total	200	100%

To what extent did your personal experience affect your job 3. performance - such as having trouble concentrating or missing work?		Number of Responses	Response Ratio
Not at All		72	36%
Slight Extent		86	43%
Moderate Extent		36	18%
Great Extent		6	3%
Total		200	100%

To what extent did you have a source of support for you own emotional 4. needs?		Number of Responses	Response Ratio
Not at All		20	10%
Slight Extent		45	23%
Moderate Extent		61	31%
Great Extent		69	35%
Total		195	100%

To what extent did you have a source of support for your own physical 5. needs (shelter, food, water, electricity)?		Number of Responses	Response Ratio
Not at All		11	6%
Slight Extent		28	14%
Moderate Extent		54	28%
Great Extent		101	52%
Total		194	100%

If specially trained volunteers were available to help you with home and family issues in the immediate aftermath of a future disaster so that you could better focus on your Extension work with disaster victims, to what extent would you make use of these supports?		Number of Responses	Response Ratio
Not at All		24	13%
Slight Extent		63	33%
Moderate Extent		67	35%
Great Extent		35	19%
Total		189	100%

7. To whom (person or agency) did you turn for support of your emotional needs?

[VIEW](#) 181 Responses

8. To whom (person or agency) did you turn for support of your physical needs (shelter, food, water, electricity)?

[VIEW](#) 182 Responses

9. Please provide any additional comments regarding personal needs you had during the 2004 hurricane season.

[VIEW](#) 101 Responses

Extension Faculty Professional Needs

10. List the three (3) greatest professional challenges you faced as a result of the 2004 hurricanes.

[VIEW](#) 190 Responses

11. To what extent were you prepared to address the professional challenges that you faced?		Number of Responses	Response Ratio
Not at All		21	11%
Slight Extent		57	30%
Moderate Extent		96	50%
Great Extent		19	10%
Total		193	100%

12. To what extent were you prepared to address the stress or emotional symptoms your clientele exhibited after the hurricanes?		Number of Responses	Response Ratio
Not at All		28	15%
Slight Extent		70	37%
Moderate Extent		77	41%
Great Extent		15	8%
Total		190	100%

13. If clientele exhibited stress or emotional symptoms, describe how you addressed their needs.

[VIEW](#) 153 Responses

14. To what extent was it difficult for you to balance personal and professional needs?		Number of Responses	Response Ratio
Not at All		40	21%
Slight Extent		71	37%
Moderate Extent		52	27%
Great Extent		28	15%
Total		191	100%

15. Describe what was most difficult for you about balancing personal and professional needs.

[VIEW](#) 155 Responses

16. To what extent do you need professional development in the following areas in preparation for hurricanes and other emergency situations?

<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1 Not at All	2 Slight Extent	3 Moderate Extent	4 Great Extent
1. Working with the media	23% 44	30% 59	32% 63	14% 28
2. Coping with personal stress	24% 47	51% 100	19% 37	6% 12
3. Helping coworkers cope with stress	16% 31	37% 72	35% 69	12% 23
4. Helping clientele cope with stress	12% 24	32% 63	37% 73	18% 35
5. Personal needs (emotional and physical needs)	33% 64	41% 80	20% 38	6% 11
6. Hurricane disaster preparedness	15% 29	36% 69	35% 68	14% 28
7. Hurricane disaster recovery	7% 14	22% 42	41% 79	30% 59
8. Applying my subject matter in disaster situations	15% 30	26% 51	32% 63	26% 51
9. Other	55% 35	8% 5	14% 9	23% 15

17. If OTHER was selected in Question 16, please specify below.

[VIEW](#) 33 Responses

How likely would you be to attend or participate in the following training formats in preparation for 18. hurricanes or other emergency situations?				
<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1	2	3	4
	Not at All	Slight Extent	Moderate Extent	Great Extent
1. Statewide conference	18% 35	32% 63	32% 63	17% 33
2. District meeting	5% 10	12% 24	27% 53	56% 111
3. Web-based module/CD-ROM	15% 30	25% 48	30% 58	30% 58
4. Telephone conference	25% 48	34% 65	24% 46	18% 35
5. Videoconference	18% 35	34% 66	27% 52	21% 41
6. Print materials	8% 15	18% 36	36% 70	38% 75

Please provide any additional comments regarding professional needs you had during the 2004 19. hurricane season.

[VIEW](#) 44 Responses

Extension Communication Efforts

To what extent did you make use of mass media channels to 20. communicate during recent hurricanes?		Number of Responses	Response Ratio
Not at All		61	31%
Slight Extent		56	28%
Moderate Extent		54	27%
Great Extent		27	14%
Total		198	100%

21. To what extent did your local extension office make use of mass media channels to communicate during the recent hurricanes?		Number of Responses	Response Ratio
Not at All		40	21%
Slight Extent		65	33%
Moderate Extent		68	35%
Great Extent		22	11%
Total		195	100%

22. To what extent do you believe the general public was aware of Extension's efforts during the recent hurricanes?		Number of Responses	Response Ratio
Not at All		39	20%
Slight Extent		104	53%
Moderate Extent		46	23%
Great Extent		8	4%
Total		197	100%

23. To what extent do you believe your Extension clientele group was aware of Extension's efforts during the recent hurricanes?		Number of Responses	Response Ratio
Not at All		22	11%
Slight Extent		67	34%
Moderate Extent		79	40%
Great Extent		29	15%
Total		197	100%

To what extent did your Extension office use the following communication sources/channels to convey information to the public during the recent hurricanes				
24. The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option	1	2	3	4
	Not at All	Slight Extent	Moderate Extent	Great Extent
1. Flyers, print materials	10% 20	29% 56	32% 63	29% 56
2. Newspaper	18% 34	34% 64	29% 56	19% 37
3. Radio public service announcements	51% 96	23% 43	19% 36	6% 12
4. Live radio interviews	66% 123	21% 39	10% 19	3% 6
5. TV public service announcements	69% 128	19% 35	9% 17	3% 5
6. Live TV interviews	71% 130	22% 40	7% 13	1% 1
7. Internet/Web	39% 74	22% 42	24% 46	14% 27
8. Other	56% 37	11% 7	18% 12	15% 10

25. If OTHER was selected in Question 24, please specify below.

[VIEW](#) 37 Responses

Of the communication sources/channels you used, which one was most effective in conveying information to the public during the recent hurricanes?		Number of Responses	Response Ratio
Flyers, print materials		49	32%
Newspaper		45	29%
Radio public service announcements		15	10%
Live radio interviews		6	4%
TV public service announcements		6	4%
Live TV interviews		4	3%
Internet/Web		4	3%
Other		26	17%

Total	155	100%
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27. If OTHER was selected in Question 26, please specify below.

[VIEW](#) 28 Responses

What message(s) were you trying to get across to the public during the recent hurricanes?
28. Please describe.

[VIEW](#) 151 Responses

To what extent did you use the following personal communication methods to convey information to your Extension clientele group during the recent hurricanes?

29.

<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1	2	3	4
	Not at All	Slight Extent	Moderate Extent	Great Extent
1. Face to face	8% 16	23% 43	32% 61	37% 71
2. On-site visits	27% 51	30% 56	23% 43	20% 38
3. Telephone	12% 22	21% 40	30% 57	37% 71
4. Cell phone	34% 64	25% 47	21% 40	19% 36
5. Text messaging	95% 169	3% 5	2% 3	0% 0
6. Electronic mail (e-mail)	34% 62	31% 57	23% 43	12% 23
7. Other	67% 31	2% 1	20% 9	11% 5

30. If OTHER was selected in Question 29, please specify below.

[VIEW](#) 27 Responses

Of the personal communication methods you used, which one was most effective in conveying information to your Extension clientele group during the recent hurricanes?		Number of Responses	Response Ratio
Face to face		60	36%
On-site visits		16	9%
Telephone		59	35%
Cell phone		14	8%
Text messaging		1	1%
Electronic mail (e-mail)		8	5%
Other		11	7%
Total		169	100%

32. If OTHER was selected in Question 31, please specify below.

[VIEW](#) 12 Responses

33. What message(s) were you trying to get across to your Extension clientele group during the recent hurricanes? Please describe.

[VIEW](#) 148 Responses

34. Does your Extension office have a plan to manage communication efforts in a crisis like the hurricanes or other emergency situations?		
<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1 YES	2 NO
1. Internally	83% 160	17% 33
2. Externally	57% 104	43% 80

Disaster Preparedness: "The Disaster Handbook"

35. Does your office have the UF/IFAS publication, "The Disaster Handbook"?		Number of Responses	Response Ratio
Yes		193	98%
No		3	2%
Total		196	100%

36. Do you know where "The Disaster Handbook" is located within your office?		Number of Responses	Response Ratio
Yes		177	90%
No		20	10%
Total		197	100%

37. Have you ever been trained on how to use "The Disaster Handbook"?		Number of Responses	Response Ratio
Yes		54	27%
No		143	73%
Total		197	100%

38. Did you refer to "The Disaster Handbook" during the hurricane season or for any other disaster in 2004? (If NO, skip to Question 41)		Number of Responses	Response Ratio
Yes		125	63%
No		73	37%
Total		198	100%

39. If YES to Question 38, what did you find to be the most helpful section? (please specify)	
VIEW 106 Responses	

40. If YES to Question 38, what suggestions do you have to improve and/or update "The Disaster Handbook"? (please specify)	
VIEW 83 Responses	

41. If NO to Question 38, why did you not utilize "The Disaster Handbook"?

[VIEW](#) 59 Responses

Prior to the 2004 hurricane season, when was the last time you reviewed or used "The Disaster Handbook"?	Number of Responses	Response Ratio
Within the month prior to the start of the 2004 hurricane season 	13	7%
Within 2-6 months before the 2004 hurricane season began 	17	9%
Within 7-12 months before the 2004 hurricane season began 	17	9%
More than a year ago 	66	34%
Never 	80	41%
Total	193	100%

Did you know that a Web-based version of "The Disaster Handbook" exists? (If NO, skip to Question 46)	Number of Responses	Response Ratio
Yes 	124	63%
No 	73	37%
Total	197	100%

If YES to Question 43, had you checked and become familiar with the website before the 2004 hurricane season began?	Number of Responses	Response Ratio
Yes 	30	25%
No 	91	75%
Total	121	100%

If YES to Question 43, did you know how to use the Web-based version of "The Disaster Handbook" to find updated pages before the 2004 hurricane season began?	Number of Responses	Response Ratio
Yes 	31	31%
No 	68	69%
Total	99	100%

46. Did you use the Web-based version of "The Disaster Handbook" during the hurricane season or for any other disaster in 2004? (If NO, skip to Question 50)		Number of Responses	Response Ratio
Yes		52	28%
No		135	72%
Total		187	100%

47. If YES to Question 46, did you find it useful?		Number of Responses	Response Ratio
Yes		46	84%
No		9	16%
Total		55	100%

48. If YES to Question 46, what did you find to be the most helpful section? (please specify)	
VIEW 37 Responses	

49. If YES to Question 46, what suggestions do you have to improve and/or update the Web-based version? (please specify)	
VIEW 24 Responses	

50. If NO to Question 46, why did you not utilize the Web-based version? (please specify)	
VIEW 112 Responses	

51. Which format of "The Disaster Handbook" would you most likely use?		Number of Responses	Response Ratio
The notebook (print) format		43	26%
The Web-based format		28	17%
I would use both formats		97	58%
Total		168	100%

52. Does your office have the UF/IFAS publication, "Triumph Over Tragedy"?		Number of Responses	Response Ratio
Yes		49	32%
No		102	68%
Total		151	100%

53. If YES to Question 52, did you refer to "Triumph Over Tragedy" during the hurricane season or any other disaster in 2004?		Number of Responses	Response Ratio
Yes		10	14%
No		64	86%
Total		74	100%

54. To what extent did the following barriers get in the way of you utilizing resources such as the Disaster Handbook, Triumph Over Tragedy, or other Extension resources following the hurricanes.				
<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1	2	3	4
	Not at All	Slight Extent	Moderate Extent	Great Extent
1. Materials were located in the main office	71% 120	15% 25	7% 11	8% 13
2. Didn't know that certain materials were available	41% 73	26% 46	19% 33	14% 24
3. Didn't have time to access materials	40% 68	30% 52	14% 24	16% 28
4. Didn't know where to find materials	62% 107	20% 35	9% 16	9% 15
5. Materials were online and we didn't have computer access	52% 85	17% 28	11% 18	20% 33

Resources

To what extent did you access or contact the following LOCAL agencies in order to do your job more effectively before, during, and after the recent hurricanes?

<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1	2	3	4
	Not at All	Slight Extent	Moderate Extent	Great Extent
1. County Emergency Management	22% 42	14% 26	22% 41	42% 80
2. County Fire/Rescue	67% 125	14% 26	13% 24	6% 12
3. Local Law Enforcement	61% 114	16% 30	15% 28	8% 15
4. County Road Department	62% 117	16% 31	12% 22	10% 18
5. County and/or City Public Works Department	58% 108	17% 32	16% 30	8% 15
6. County and/or City Solid Waste Department	59% 110	20% 37	15% 27	6% 12
7. County Health Department	55% 102	19% 36	17% 32	8% 15
8. Local/Regional Utilities (electric, gas)	55% 101	21% 38	15% 27	10% 19
9. Telephone Company	68% 121	17% 31	11% 19	4% 8
10. Other	69% 38	4% 2	9% 5	18% 10

56. If OTHER was selected in Question 55, please specify below.

[VIEW](#) 20 Responses

To what extent did you access or contact the following STATE agencies in order to do your job more effectively before, during, and after the recent hurricanes?

<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1 Not at All	2 Slight Extent	3 Moderate Extent	4 Great Extent
1. Florida Department of Agriculture & Consumer Services Division of Consumer Services	58% 108	23% 42	12% 23	6% 12
2. Florida Department of Agriculture & Consumer Services Division of Animal Industry	64% 120	19% 36	9% 16	9% 16
3. Florida Department of Agriculture & Consumer Services Division of Forestry	77% 141	13% 23	7% 13	3% 6
4. Florida Department of Agriculture & Consumer Services Division of Plant Industry	73% 137	18% 33	6% 11	3% 6
5. Florida Department of Agriculture & Consumer Services Office of Bio & Food Security Preparedness	89% 162	9% 16	3% 5	0% 0
6. Florida Department of Children and Families	87% 158	10% 19	3% 5	0% 0
7. Florida Department of Community Affairs, Division of Emergency Management	76% 137	16% 28	6% 11	2% 4
8. Florida Department of Community Affairs, Division of Housing and Community Development	90% 166	9% 16	1% 2	1% 1
9. Water Management District	82% 154	14% 27	3% 5	1% 1
10. Florida Department of Health	83% 151	12% 22	3% 6	2% 4
11. Florida Department of Transportation	91% 167	6% 11	3% 5	0% 0
12. University of Florida/IFAS	20% 38	23% 43	31% 58	25% 47
13. University of Florida Health Science Center	96% 177	2% 4	2% 4	0% 0
14. Other	79% 31	8% 3	5% 2	8% 3

58. If OTHER was selected in Question 57, please specify below.

[VIEW](#) 12 Responses

59. To what extent did you access or contact the following FEDERAL agencies in order to do your job more effectively before, during, and after the recent hurricanes?

<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1 Not at All	2 Slight Extent	3 Moderate Extent	4 Great Extent
1. USDA: Farm Service Agency (FSA)	50% 96	14% 26	16% 31	20% 38
2. USDA: Natural Resources Conservation Service (NRCS)	61% 115	17% 33	10% 19	12% 22
3. USDA: Rural Development (RD)	91% 174	5% 10	3% 5	1% 2
4. USDA: Animal & Plant Inspection Services (APHIS)	86% 161	9% 17	3% 6	2% 4
5. U.S. Environmental Protection Agency (EPA)	89% 169	7% 14	3% 5	1% 1
6. U.S. Department of Health and Human Services: Centers for Disease Control (CDC)	92% 172	7% 13	1% 1	1% 1
7. U.S. Department of Homeland Security: Federal Emergency Management Agency (FEMA)	59% 109	16% 29	14% 25	12% 22
8. National Oceanic & Atmospheric Association (NOAA): National Weather Service	65% 120	12% 22	11% 21	12% 22
9. National Oceanic & Atmospheric Association (NOAA): National Hurricane Center	62% 116	11% 20	11% 20	17% 32
10. U.S. Occupational Safety & Health Administration (OSHA)	96% 180	4% 7	0% 0	0% 0
11. U.S. Army Corps of Engineers	87% 161	9% 16	3% 5	2% 3
12. Other	89% 41	4% 2	2% 1	4% 2

60. If OTHER was selected in Question 59, please specify below.

[VIEW](#) 6 Responses

61. To what extent did you access or contact the following OTHER ORGANIZATIONS/RESOURCES in order to do your job more effectively before, during, and after the recent hurricanes?

<i>The top percentage indicates total respondent ratio; the bottom number represents actual number of respondents selecting the option</i>	1	2	3	4
	Not at All	Slight Extent	Moderate Extent	Great Extent
1. American Red Cross	62% 117	19% 35	14% 26	6% 11
2. Salvation Army	79% 148	13% 25	6% 11	2% 3
3. Other	85% 52	3% 2	3% 2	8% 5

62. If OTHER was selected in Question 61, please specify below.

[VIEW](#) 15 Responses

Extension's Impact During Hurricane Relief

63. Please describe briefly the impact (success stories) your county Extension office had with clientele during the recent hurricanes.

[VIEW](#) 117 Responses

64. Please relate briefly how you responded - as an Extension professional - in the hurricane relief efforts in your community.

[VIEW](#) 142 Responses

65. Please provide the names and contact information (address, phone, email) below of the people in your community who you think would be willing to discuss how Extension made a positive impact in your community.

[VIEW](#) 50 Responses

Demographics

66. What is your Extension rank?	Number of Responses	Response Ratio
Extension Agent I 	44	23%
Extension Agent II 	33	17%
Extension Agent III 	33	17%
Extension Agent IV 	47	25%
Courtesy Extension Agent I	8	4%
Courtesy Extension Agent II	3	2%
Courtesy Extension Agent III	5	3%
Courtesy Extension Agent IV 	13	7%
Extension Program Assistant	1	1%
Other	4	2%
Total	191	100%

67. If OTHER was selected in Question 66, please specify below.

[VIEW](#) 3 Responses

68. For those with administrative responsibilities only, please select the appropriate option.	Number of Responses	Response Ratio
County Extension Director 	39	95%
District Extension Director 	2	5%
Total	41	100%

69. What county or counties do you work in?

[VIEW](#) 182 Responses

70. How many years of experience do you have with the Cooperative Extension Service?

[VIEW](#) 190 Responses

71. Please indicate your PRIMARY program area.	Number of Responses	Response Ratio
Agriculture/Natural Resources 	45	23%
Community Development	2	1%
Family & Consumer Sciences (including FNP/EFNEP) 	46	24%
4-H/Youth Development 	37	19%
Sea Grant/Aquaculture	8	4%
Ornamental/Environmental Horticulture 	21	11%
Urban Horticulture (including Master Gardener) 	16	8%
Commercial Horticulture (vegetables, citrus, forestry)	8	4%
Other 	11	6%
Total	194	100%

72. If OTHER was selected in Question 71, please specify below.

[VIEW](#) 12 Responses

73. Please indicate your age.

[VIEW](#) 177 Responses

74. Please indicate your gender.	Number of Responses	Response Ratio
MALE 	70	38%
FEMALE 	114	62%
Total	184	100%

75. Please indicate the ethnicity with which you most closely identify.	Number of Responses	Response Ratio
African-American	5	3%
Asian-American	0	0%
Caucasian 	166	90%
Hispanic/Latino	3	2%
Native American	3	2%
Other	7	4%
Total	184	100%

76. If OTHER was selected in Question 75, please specify below.

[VIEW](#) 4 Responses

APPENDIX B
PRE-NOTICE LETTER TO IFAS EXTENSION FACULTY FROM EXTENSION
DEAN

November 30, 2004

TO: County Extension Faculty

FROM: Dr. Larry Arrington, UF/IFAS Extension Dean

RE: Extension Hurricane Response Survey

Within the next few days you will be receiving a web-based questionnaire entitled: Front-Line Disaster Responders: The Needs of Florida's County Extension Professionals. It is focused on UF/IFAS Extension's Response with the 2004 hurricane season.

We realize that many of you have been dealing with the reality of the direct hits that we had this past fall. We know that Extension has gone above and beyond the call of duty to help clientele in many different ways. We also know that this has been a real personal and professional challenge in dealing with all the needs and issues that have arisen from these devastating storms that have affected our state.

It is because of these reasons, that I ask you to complete this very important questionnaire in a timely fashion upon receiving it. This questionnaire is designed to help us capture what we did as an Extension organization to help local clientele and communities. Moreover, it will provide critical data related to personal and professional needs that you have. This information will help us develop much needed organizational communication, training, curriculum and resources in preparation for future hurricanes and other types of disasters.

If you have any questions about this questionnaire, you can contact: Nick Place, Ricky Telg, Tracy Irani or Mark Kistler in the Department of Agricultural Education and Communication. Thank you in advance for your candid participation.

Larry R. Arrington
Dean for Extension and
Director, Florida Cooperative Extension

APPENDIX C
FOLLOW-UP LETTER FROM DEPARTMENT OF AGRICULTURAL EDUCATION
AND COMMUNICATION

TO: All County and District Extension Faculty

RE: Extension Hurricane Response Survey

Dear UF/IFAS Extension Faculty,

Within the past few days, you should have received an email letter from Dr. Larry Arrington, Extension Dean, requesting your input on a statewide study related to Extension's response during the 2004 hurricane season. The web-based questionnaire is entitled: *Front-Line Disaster Responders: The Needs of Florida's County Extension Professionals*. The 2004 hurricane season officially ended on Tuesday, November 30, and with that we are asking for your input on this questionnaire.

This questionnaire is designed to help us capture what we did as an Extension organization to help local clientele and communities. Moreover, it will provide critical data related to personal and professional needs that you have. This information will help us develop much needed organizational communication, training, curriculum and resources in preparation for future hurricanes and other types of disasters.

Thank you very much for your involvement and input for this study. If you have any questions about this questionnaire, you can contact: Nick Place (nplace@ufl.edu), Ricky Telg (RTelg@mail.ifas.ufl.edu), Tracy Irani (TAIrani@mail.ifas.ufl.edu) or Mark Kistler (MJKistler@ifas.ufl.edu) in the Department of Agricultural Education and Communication.

To link to this questionnaire, please click on the link below.

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BIOGRAPHICAL SKETCH

Abbe Rebecca DeGroat was born March 19, 1981 in Philadelphia, Pennsylvania, to Robert and Carole DeGroat. She lived in Stratford, New Jersey, until the age of three, when she moved to Clifton Park, New York with her parents and siblings, Kira, Kalen, and Benjamin. She attended Shenendehowa High School, where she graduated in 1999.

She developed a love of horses, especially Appaloosas, and animals in general at an early age. Because of this interest, she decided to pursue a career in the animal or livestock field. Having moved to Gainesville, Florida immediately after her high school graduation, she pursued a degree in animal science with an emphasis in animal biology and a minor in business administration at the University of Florida, graduating in 2003.

Departing from the field of animal science, she enrolled in graduate school in the Department of Agricultural Education and Communication, focusing on Extension Education, with a minor in youth development in August 2003. During her graduate studies, she was actively involved in the Agricultural Education and Communication Graduate Student Association and University of Florida Collegiate 4-H. In addition, she served as a graduate research assistant for the Program Development and Evaluation Center and in the state 4-H office.