

and, if necessary, treated with fumigants or systemic insecticides. The history of insect migrations and life cycles also will aid in control decisions.

For specific information on insect control, consult your County Extension Agent and/or Circular 193; "Insect Control Guide."

**Diseases.** Pathogenic diseases are encountered by potato growers each year. These diseases are caused by bacteria, fungi, virii and mycoplasmas.

Prevention and control of the many diseases affecting potatoes vary widely depending on the specific disease. There are, however, some practices that apply to all diseases, including (1) use of properly handled certified seed; (2) following a regular sanitation program; (3) use of fungicides at the proper rates and with the proper timing; and (4) use of correct cultural practices to reduce the environment for disease buildup and spread.

Diseases caused by bacteria, such as bacterial soft rot, black leg, brown rot (southern bacterial wilt), ring rot and common scab are prime examples of control by cultural techniques. These diseases must be controlled by certified seed, sanitation, resistant varieties, and soil pH (in the case of scab).

Diseases caused by fungi include *Fusarium* and *Verticillium* wilt, early blight, late blight, sclerotinia (white mold), *rhizoctonia* and silver scurf. The controls for these diseases are varied and include the use of specific fungicides.

Virus diseases usually are not a serious problem in Florida, providing certified seed is used. An exception is corky ringspot in the Hastings area.

A few disorders of potatoes are non-pathogenic or are physiological in nature. A few of these disorders which are found in Florida are: hollowheart, knobiness or "second growth," greening, internal black spot and air pollution damage. Many times, these disorders can be confused with symptoms from pathogenic diseases. Correct disease identification must be made before control measures are attempted.

**Weeds.** An effective weed control program takes into account the primary weed species in the area, cultivation and available herbicides. Weed problems can be specific for different fields and production areas. Weed control practices and herbicides should be selected for control of the primary weeds present.

Perennial grasses, including nutsedges, Bermuda grass, Johnson grass and quackgrass, many times are the most difficult to control. A combination of cultural practices and specific selected herbicides is needed for control. These grasses, which cause yield reductions and decrease harvest efficiency, can also reduce tuber yield by rhizome penetration of the potato tubers.

Early cultivation, or preplant/preemergence herbicides coupled with a later cultivation or post-emergence treatment, usually will provide adequate early season control of broad-leaf weeds and annual grasses. Varieties that form dense canopies with their foliage also aid in effective weed control.

## Harvesting and Handling

Potato harvesting is a highly mechanized operation in Florida. Mishandling during harvesting has a highly detrimental effect on the quality of potatoes delivered to processors or to the fresh market. Attention to the details described below will help growers, packers and shippers preserve the high quality necessary to maintain a competitive position in today's marketplace.

**Vine Killing.** Harvesting is easier when the potato vines are dead. With modern, high-yielding production techniques, green vines are maintained later in the growing season and it has become necessary to kill the vines in preparation for harvest.

Vine killing has two major advantages from the quality standpoint: (1) it reduces bruising, and (2) it encourages better "skin set." Less bruising is the result of easier separation of vines and tubers. During tuber growth and development, the skin (periderm) is constantly being sloughed off. Timely killing of potato vines effectively stops tuber growth and allows the periderm to thicken and toughen. This "skin setting" results in a more attractive potato that has better resistance to postharvest water loss and decay than tubers harvested from green vines.

Vine killing usually should start two to three weeks before harvest, depending on the cultivar, growing conditions, and time of year. Three general methods are used for vine killing: (1) mechanical, (2) chemical, and (3) combinations of the two. Mowing and pulling are possible mechanical methods. Machines should be adjusted to avoid disturbing the soil, to prevent tuber exposure to sunlight, frost, or mechanical damage. Several herbicides are labeled for vine killing (consult your County Agent for current recommendations). Vine killing is costly and difficult to accomplish; therefore, it should be a well-planned and carefully executed operation.

Vine killing can sometimes adversely affect tuber internal quality. This problem appears as a discoloration in the vascular ring, usually confined to the stem end. Occasionally, vascular discoloration may be severe enough to reduce tuber grade. The occurrence of vascular discoloration is usually associated with rapid vine killing. Adoption of one of the following practices will help minimize the possibility