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Extension Service Opportunities in Packaging Science[1]

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Why should an Extension agent be concerned with packaging? Packaging has direct impact on all our lives -- whether a consumer who wants to buy environmentally friendly packaging or a small company or farmer who needs help with a distribution problem. The Extension service has long aided individuals with advice on the protection of food products; and advice on home canning and other preservation techniques is a traditional service. In our modern society, the scope of packaging is much broader than sealing a product in a Mason jar and shipping it to market. A small business may have packaging problems occurring daily, for which expert and knowledgeable assistance is needed. While large companies have internal packaging departments, small business's only recourse has been hiring expensive consultants or just muddling along as best they can. Packaging offers a new application area that can be a readily accessible part of the traditional Extension services for business or consumer education.

Scope of Packaging

For Extension professionals to be able to aid businesses or conduct consumer education in the packaging field, some general descriptions of packaging are needed. Packaging is an essential part of modern society and of our economy. Everything that is sold has packaging associated with it, and packaging addresses several basic functions.

- Contain -- hold the product in a usable size and form.
- Preserve and Protect -- protect the product from any quality damage (infestation, contamination, loss of appropriate fragrance or taste, loss of efficacy, breakage, loss or gain of moisture) and aid in preserving quality over time or shelf-life.
- Aid in Distribution -- facilitate manual and automated distribution or transport of the product, and reduce impact of distribution and handling damage to the product.
- Inform and Sell -- graphics and package aesthetics answer the questions "what is it, what does it do for me, how do I use it, and who guarantees the product." Regulation-required

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labeling and marketing are also provided by the package.

Packaging comes in many forms and materials. The basic materials are as follows:

- Metal -- Retort cans, aerosol sprays, barrels and canisters.
- Glass -- Bottles, jars, and decanters.
- Cellulosics -- Crates, pallets, paper, corrugated fiberboard and similar cellulose-based products.
- Plastics -- Flexible packaging, or pouches, films, rigid and semi-rigid containers, trays, microwaveable containers and variable barrier materials.

Opportunity for Extension Services

Both large and small businesses have problems that Extension services together with the University of Florida packaging lab could be called upon to investigate. A few examples are as follows.

- Packaging failure causing product contamination. A few years ago, a snack manufacturer released a new line of cookies. All went well in the beginning but soon complaints came from consumers of a foul taste with the first bite of the cookie. Answers were needed quickly. Was the contamination from the package? Was it hazardous to health? What caused it? Rapid investigation by packaging professionals found out that the problem was not a health issue, thus avoiding a recall. Analysis of old and faulty packages showed that the contaminant came from an inappropriate adhesive blend used in the film lamination process.
- What is the most cost-effective package for shipping and storing this product? A fragile snack product was packaged in a pillow pouch with an air cushion to protect the contents. The product was then shipped cross-country over the mountains in a truck. It was discovered that almost half of the bags had exploded. The company wanted to know if stronger package seals would protect them from future losses, and if stronger seals would interfere with customers opening the bags.
- How can I extend the shelf life of this product? The UF packaging lab is able to do shelf life studies that can specifically determine what degrading action the product is most vulnerable to: light, oxygen, moisture, etc. It could then recommend the types of packaging materials and forms to best preserve the product.
- How can I make my product more marketable? Recently UF Extension provided assistance to farmers in the rainforests of Guyana. The goal was to enable their products to be sold in retail markets, and an inexpensive decorated paper wrap was developed that can overwrap the existing pouch to provide retail quality graphics in a simple to execute form.
- Environmental Concerns. Packaging concerns itself with materials and forms that will decrease the volume of waste and render the package recyclable. Food manufacturers do not want packages that will biodegrade and contaminate their products. Extension services and UF specialists could advise businesses on the best materials to use that will protect the product and be environmentally friendly.

Conclusion

Packaging Science is a viable and expanding area into which Extension agents can reach a broader audience. The packaging program at the University of Florida is a resource, training aid, and asset which county Extension agents can call upon to meet client needs.