

McGovern, R. J. and L. E. Datnoff. 1992. Fusarium crown and root rot: Reevaluation of management strategies. Pages 75-86 *In* C. S. Vavrina (Ed.) Proc. Florida Tomato Institute. Vegetable Crops Special Series SS-HOS-1, Vegetable Crops Department, University of Florida-IFAS, Gainesville, FL 32611.

McGovern, R. J., L. E. Datnoff, I. Secker, C. S. Vavrina, J. C. Capece, and J. W. Noling. 1993. New developments in the management of Fusarium crown and root rot of tomato in Southwest Florida. Pages

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NON-CULTURAL FACTORS AFFECTING DADE COUNTY VEGETABLE PRODUCTION AFTER HURRICANE ANDREW

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Additional index words. storm debris, equipment, irrigation systems, packing houses, farmworker housing, emergency preparedness.

Abstract. Hurricane Andrew, which struck the agricultural area surrounding Homestead, Florida, on the morning of 24 Aug. 1992, did extensive damage to the commercial fruit and nursery industries. Fall planting for vegetables was to have begun the last week in August, but was delayed by the storm. Several other factors prevented vegetable growers from planting their usual acreage allotments. These included: debris on previously disced fields; the appropriation of vegetable land for tent cities and debris disposal sites by the federal government or its agents; lack of housing for migrant and other labor; damage to equipment, including irrigation systems; and damage to packing facilities. While some of these factors were unavoidable consequences of the storm, others might have been prevented had the needs of agriculture been included in emergency preparations at the county, state, and federal levels.

Introduction

As experts from the National Weather Service and the National Hurricane Center (Paul Hebert, 1993, personal communication) remind Floridians, every hurricane is different. Some bring heavy rains, while others are characterized by violent winds. Still others combine heavy rains with strong winds. State, county, and local governments in Florida have departments or divisions which handle emergency preparedness operations for natural disasters such as hurricanes, but most do not take agricultural activities into account. The effects of a storm may cause severe crop loss, but other non-cultural factors can affect agricultural production for many months after a major storm. Examples of the types of non-cultural factors which caused disruptions to vegetable production in Dade County are discussed below.

Immediate Problems

Since the main planting season for winter vegetables had not begun when Hurricane Andrew struck Dade County the morning of 24 Aug. 1992, crop damage was limited to tropical and specialty vegetables and a few early plantings of traditional vegetables. The first problems facing Dade County vegetable growers included: (a) debris which accumulated on previously disced fields as a result of the storm itself and from clean up activities which followed, (b) damage to equipment, (c) damage to packing houses, and (d) lack of farmworker housing.

A. Storm debris. Storm debris usually came from adjacent or nearby properties and included: (a) agricultural debris - trees or tree limbs from groves, shade houses and plant materials from container nurseries, and agricultural structures, both metal and wood; and (b) residential debris - roofs, shingles, windows, sections of mobile homes, etc. Clean up debris was also illegally dumped on vegetable lands by both neighbors and people passing through the farming area. Some of this debris was the result of grove clean up, while other debris was residential.

Debris caused the following problems: (a) plantings were delayed until debris could be removed, (b) remnants interfered with equipment, and (c) debris clean up sometimes created low spots because it removed top soil.

B. Damage to equipment. The strong winds accompanying Hurricane Andrew caused damage to most agricultural equipment, including tractors and trucks which were blown several or more feet during the peak of the storm and to all types of irrigation systems. Many pole barns blew down on top of equipment, adding to clean up problems. Private insurance covered replacement of some irrigation systems, especially lateral move rigs. Other equipment was eligible for USDA Emergency Conservation Program funds through the Agricultural Stabilization & Conservation Service (ASCS) and the Soil Conservation Service. Both private and government funds required meetings with and site visits by insurance adjusters or USDA field inspectors.

C. Damage to packing houses. All vegetable packing houses in Dade County were affected by the winds accompanying Hurricane Andrew. Damage ranged from complete destruction of several older wooden structures, to loss of trusses and metal siding in the newest buildings and to window, door and cooling systems in the concrete block stucco houses. Wooden packing houses have been de-

molished and rebuilt. Others have been repaired. Many growers had difficulty obtaining the necessary permits from Dade County in a timely fashion. The Florida City State Farmers Market was among the damaged facilities, but its reconstruction was viewed as having high priority with the Florida Department of Agriculture and Consumer Services, so that facility reopened in mid-Nov. 1992.

D. *Lack of farmworker housing.* Most apartment complexes and all mobile homes in the Homestead area were destroyed or rendered uninhabitable by the winds in Hurricane Andrew. Homestead is characterized by having 60% rental properties (Katie Mitchell, 1992, personal communication). Farmworkers, especially seasonal migrants, were among those displaced. Lack of housing meant farmworkers were not available to perform key tasks such as harvesting labor intensive crops like summer squash (yellow crookneck and zucchini). Some growers decided to change their crop mix to crops which could be mechanically harvested (Bruce Dunn, 1992, personal communication). The Dade County Farm Bureau and local vegetable growers made farmworker housing a priority for the Agriculture Subcommittee of We Will Rebuild. Dade County and the Farmers Home Administration worked to construct a mobile home park for farmworker families. This effort, known as the "Andrew Center," was dedicated in early January 1993. Local relief agencies also addressed the problem of housing for single workers. As of late 1993, most farmworkers had housing.

Long Term Problems

In addition to the physical damage caused by the hurricane, some problems affecting Dade County vegetable production were the result of the massive recovery and clean up activities. These included: (a) the use of vegetable fields for tent "cities", (b) use of vegetable land for debris disposal and processing sites, and (c) problems with monies from USDA and other government programs.

A. *Tent "cities"*. At least 4 vegetable growers had land appropriated for tent cities. The tent "cities" themselves precluded planting vegetables, but the land preparation used for the "cities" was an even greater problem. Heavy equipment compacted the soil to such an extent that it could not be farmed without extensive remedial action such as rock plowing and the addition of large amounts (150 MT/ha) of compost. Growers have not received direct compensation for land taken out of production, though some were eligible for limited "Prevented Planting" monies from the ASCS.

B. *Debris disposal and processing sites.* The debris generated during clean up efforts was equivalent to roughly 15 years worth of space in local landfills. For reconstruction of housing and other buildings to begin and to prevent rodent- and insect-borne human diseases, timely debris removal was essential. The most severely affected areas, including agricultural properties received 3 free pickups from government contractors (personal observation). Debris included metal (sheds, window frames, mobile homes, cars, etc.), wood (roofs, trusses, etc.), fabric (clothing, furniture, etc.),

and plant material from yards and commercial agriculture. The South Dade Landfill and local trash transfer stations were not equipped to handle the massive amount of debris. Contractors found vacant fields, most of which had been destined for fall planted vegetables, and began using them for debris processing sites. In some cases, permission was obtained after the fact. In the agricultural area of southern Dade County, 8 sites on 130 hectares were part of the formal government program; in addition, 32 growers received permits for active burn sites on over 425 hectares (David Ettman, 1993, personal communication). As the government program got underway, local debris piles 10-18 meters high began appearing around southern Dade County. At first, debris was burned using portable air curtain incinerators. Public outcry halted burning after a month. The second phase involved sorting debris into trees which could be chipped into mulch with tub grinders, soil, and other debris. The latter was hauled to area landfills and incinerators for disposal.

Vegetable growers encountered several problems as a result of long term debris disposal. When debris was being burned, adjacent vegetable crops were covered with ash. Some processing sites remained active well into spring 1993, preventing any planting during the 1992-93 season. Those sites which were vacated earlier were left with a layer of residual debris which interfered with equipment. Growers had been promised compensation, but had not received any payment as late as a year after the hurricane (Sally Beale, 1993, personal communication).

Emergency Preparedness for Vegetable Growers

While it is not possible to anticipate the specific effects a hurricane may have on the agricultural area in a given county, certain emergency preparedness plans could be put into place which would speed agriculture's recovery.

Lands traditionally used for vegetable production may appear vacant when a hurricane strikes Florida. These should be clearly identified on local maps so relief personnel know permission should be obtained before tent "cities" or other long term sites are established.

USDA disaster assistance programs such as the Emergency Conservation Program rely on established yields and prices when making payments. While state and sometimes county yields are available for some commodities, they may not have been established for high value "minor" or specialty vegetables. Horticultural commodities in general (fruits, vegetables and ornamentals) are not recognized on a national level as important contributors to the local and state economies. This delays important authorizing legislation for disaster assistance programs.

A formal program to compensate growers whose land needs to be seized under eminent domain for disaster relief efforts should be established by the State of Florida. The myriad of agencies Dade growers had to deal with needs to be streamlined so production can resume as quickly as possible.