



# Economic Impacts of Zebra Chip on the Texas Potato Industry

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## *Introduction*

Texas potato production was valued at \$91.6 million in 2005 and averaged \$71.4 million annually from 2003-2005 (Texas Agricultural Statistics). Production was concentrated in four major regions of the state in 2005: The Northern High Plains (36 %), Southern High Plains (16 %), South Texas (35 %) and the Lower Valley (11 %).

Zebra chip is a pathogen believed to be spread by insects and has infested Texas growing regions since the early 1990s. It became more prevalent in 2001, and then again in 2004, 2005 and 2006. Zebra chip reduces the marketability of potatoes because it causes black stripes to appear, particularly when potatoes are processed into chips. Losses on some individual farms have exceeded \$2.0 million annually during the last two seasons. There are concerns that this condition could become more widespread if treatments and controls are not found and adopted.

The economic impacts of Zebra chip on the Texas potato industry were estimated using IMPLAN. This model utilizes economic multipliers for each sector of the economy to estimate how a change in one sector affects business activity, income and employment in other sectors of the economy that supply inputs and services to the potato sector. Baseline economic impacts were estimated for the value of annual average Texas potato production for the period 2003-2005.

## *Current Situation and Economic Baseline*

IMPLAN estimates indicate that total business activity required to support Texas potato industry was \$276.5 million annually for the period 2003-2005. This includes post farm-gate business activity of \$145.6 million and farm level business activity of \$130.9 million. Farm and related sector income generated by potato production was \$84.6 million, while another \$83.7 million was generated off the farm to support transportation, handling, processing and marketing. Total employment associated with the Texas potato industry was estimated to be 2,679 jobs. Farm employment represents 656 of those jobs. The balance of employment, 2,023 jobs, is located in non-farm sectors of the Texas economy. The most important sectors are: food and beverages, 691 jobs; truck transportation, 213 jobs; wholesale trade, 141 jobs; and agriculture support services such as sorting, grading, cleaning and packing, 80 jobs.

Significant indirect spending credited to Texas potato production is scattered over numerous industries supplying goods and services required to produce and market potatoes. Business activity of the most important supporting sectors is: agriculture support activities, \$2.5 million; wholesale trade, \$25.3 million; real estate, \$8.0 million; truck transportation, \$23.9 million; pesticide manufacturing, \$1.5 million; and farm machinery, \$184,000. Food and beverage sales at \$40.3 million, insurance and banking services at \$6.0 million, and health care at \$5.3 million are supported by household incomes generated from economic activity associated with the Texas potato industry.

South Texas potato production supports business activity of \$45.9 million, income of \$30.4 million and 485 jobs. For the Northern High Plains, business activity associated with potatoes is \$33.8 million, income is \$22.3 million and there are 221 jobs. The Lower Valley has business activity of \$13.9 million, income of \$9.4 million and 166 jobs attributable to potato production. Southern High Plains potato production supports business activity of \$16.5 million, income of \$11.0 million and 143 jobs.

## *Economic Impacts of Zebra Chip*

Industry experts estimate that infestations of Zebra chip could readily affect 35-40 percent of Texas potato acreage. Calculated estimates indicate that about 38 percent of Texas acreage could be lost or sold at reduced prices attributable to increased presence of Zebra chip. This level of damage would result in a loss of about 7,370 acres of potatoes in Texas. Using the three year reported average yield of 325 hundred weight per acre indicates that 2,396 thousand hundred weight would either be left in the field or sold for starch at prices discounted by about 90 percent. Applying average Texas potato prices for the period 2003-2005 (\$11.30/cwt), results in a loss in the value of Texas annual potato production of \$25.86 million.

Sustained production losses at this level would have substantial economic impacts on Texas. Losses in business activity associated with potato production would be \$100 million. Of this total, \$47.8 million would be losses of farm level economic activity supporting potato production. An additional \$52.2 million in business activity would be lost in associated non-farm activities. Total income losses would be \$60.9 million, with \$30.6 million in losses occurring in farming and related activities and another \$30.3 million in non-farm activities. Total job losses are estimated to reach 970, with farm job losses of 238 and non-farm job losses of 732.

Non-farm losses of business activity are estimated to be substantial and are due to reduced income associated with lost employment. About \$14.6 million in lost sales would occur in the food/beverage sector. Losses in wholesale trade and truck transportation would exceed \$8.0 million each. Real estate losses would reach \$4.4 million, while losses to each sector-medical services, banking and insurance would exceed \$2.0 million. Food service losses would be about \$1.5 million.

Losses in business activity attributable to reduced potato sales by farmers would be largest in wholesale trade, \$1.5 million. Losses in agriculture support activities would be about \$888,000, while losses in pesticide sales and other chemicals would reach \$549,000.

A total of 732 jobs would be lost beyond the farm gate. The food and beverage sector would lose 250 jobs, while wholesale trade would lose 51 jobs. Truck transportation and restaurants would lose 77 and 31 jobs, respectively. Medical service employment would decline by 22 jobs. Agriculture support services would lose 29 jobs. Fewer than 20 jobs would be lost in each of the following sectors: real estate, banking, insurance and pesticide manufacturing.

These economic impacts represent what could occur in Texas if Zebra chip is not controlled and eventually eliminated. It appears likely that the condition could become more prevalent in the southern parts of Texas and in some regions may result in a complete loss of potato acreage. If this occurs, the economic impacts would be more severe, leading to greater losses in business activity, income and employment.

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