

## European Potatoes Require Insecticide Protection from an Invasive Insect — From the U.S.

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The "Colorado potato beetle" emerged in the 1850s, when a beetle which had been feeding on weed species in the Rocky Mountains began to feed on potatoes. The CPB spread rapidly to the east and reached the Atlantic Ocean in 1874. The beetles were likened to a biblical plague: a New York Central train was stopped in its tracks and vacationers fled their cottages as rotting beetle carcasses polluted beaches [1].

The CPB feeds on the foliage of the potato plant and can completely defoliate all potato plants in a field by mid-season. Heavily defoliated plants have reduced yield which can exceed 85% [2]. Each female CPB can lay 450 eggs. Insecticide sprays were first developed for the CPB in the 1870s and a majority of potato acres in the north central and northeast states are sprayed every year.

European countries prohibited potato imports from the U.S. in 1875. In spite of this measure, beetles were found for the first time in Europe in 1877 and thereafter in 1887, 1901, and 1905. In all these cases the infested fields were eradicated by implementing immediate control measures [3]. In 1922, however, an infested area in the Bordeaux region of France was found too late; the beetles had spread on to an area of 250 km<sup>2</sup> and eradication was no longer possible [3]. The CPB continued its spread south into Spain, Portugal and Italy and east into Germany, Poland and deep into Russia. The CPB is not established in the UK, Ireland or Scandinavia due to strict monitoring and eradication policies. Control measures in these countries are compulsory.

Management of CPB in Europe is mainly based on insecticide use with 1-3 sprays per year. In Germany, it has been estimated that uncontrolled CPB would lower potato production by 50% [7]. On average about 63% of German and 80% of Polish potato acres are treated annually with insecticides to control CPB [4] [5]. The CPB outbreak in 1983 was unusually massive; populations were 2-3 times higher than normal and 20-25 adults per plant were frequently observed. Yet only 0.2% of Poland's potatoes were lost to CPB damage because 96% of Poland's acres were treated with 3 sprays that year [6].

The insecticides permitted for organic growing are not very effective against the CPB. Higher populations exist in organic fields throughout Europe. In one year of CPB interceptions in the UK, a consignment of organic potatoes had 16 live CPB adults [8]. This has implications for the consequences of increased production of organic potato crops [8].

### References

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Adult female laying eggs



Colorado beetle feeding damage



German public education poster featuring the Colorado potato beetle