



Co-ordination of Witchweed Eradication in the USA

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Case study from Wittenberg R, Cock MJW, eds, 2001. Invasive Alien Species: A Toolkit of Best Prevention and Management Practices. Wallingford, UK: CAB International, xvii-228.

The Asian and African witchweed (*Striga asiatica*) grows parasitically on the roots of members of the Poaceae, especially maize and sorghum causing significant crop losses, but also on rice, millet, sugar cane and grasses. It was first found in the USA in 1956, and the infestation was ultimately found on 200,000 ha spread over an area of 20,000 km² of eastern North and South Carolina.

When this infestation was discovered, its agronomic significance was made clear to the US Department of Agriculture (USDA) officials and congress by Dr AR Saunders of South Africa, an expert on this species, who was visiting the USA at that time, and witchweed was declared a national threat to USA agriculture. Federal and state quarantines were imposed on the infested area and a federally funded eradication effort was initiated.

One of the first recognized needs for successful eradication was research to develop eradication methods. A research station and test farms were established and a scientific team assembled. The herbicide 2,4-D applied throughout the growing season, with high clearance spray equipment, was found to be quite effective in maize but was not adequate for the eradication effort. Other herbicides and control measures were developed to control grassy host weeds in cotton, soybeans, horticultural crops and all other situations where the infestation occurred. Major improvements were made in equipment for more effective application of herbicides to all infested areas. A key breakthrough in eradication was the discovery that ethylene gas could cause suicidal germination of witchweed seeds in soil, and methods and technology were developed to exploit this.

The witchweed eradication programme was a co-ordinated effort led by USDA involving other federal and state agencies, agribusiness and the general public. The Animal and Plant Health Inspection Service (APHIS) of USDA was responsible for developing and conducting control activities in co-operation with North Carolina State University. The extension service provided education to farmers and landowners. The North Carolina Department of Agriculture was involved in regulatory activities. The Farm Bureau and other agricultural organizations helped secure funding. Clubs such as 4-H assisted in education and getting people to report suspected infestations. The ASCS (now Farm Service) assisted in mapping and identifying property owners. Newspapers and other media provided detailed and ongoing coverage of the problem.

and the eradication effort. This combined effort led everyone to recognize witchweed as everyone's problem.

Over the 45 years of the eradication programme, more than US\$ 250 million has been spent. This is a small cost compared to the US\$ 25 billion per year value of crops threatened by this parasitic weed. By the end of 1999, the eradication effort had reduced the witchweed-infested area to approximately 2,800 hectares of very light occurrences. The programme is expected to progress until finally eradication is achieved. The size of the witchweed infestation, the complexities of eradication and the time required to eradicate would normally discourage a country from starting such a major project, but the long-term benefits to agricultural productivity of the USA make this a wise investment.

See also: Sand PF, Eplee RE, Westbrooks RG, 1990. Witchweed Research and Control in the United States, Monograph Series of the Weed Science Society of America 5, 154 pp. Eplee R E, 1992. Witchweed (Striga asiatica): an overview of management strategies in the USA. Crop Protection, 11:3-7.

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