

EMERGENCY ALERT: RESISTANT PALMER AMARANTH IS SPREADING AROUND THE SUMMER RAINFALL REGION OF SOUTH AFRICA

14 January 2022

Palmer amaranth invaded South Africa in 2018

One of the most aggressive weeds that has ever invaded South Africa, the Palmer amaranth (*Amaranthus palmeri*), has been confirmed on a maize farm in the Potchefstroom district of the Northwest Province. This weed, which is also known as the Palmer pigweed, is related to other indigenous *Amaranthus* species. The threat posed by this weed compared to its indigenous relatives, is that it is resistant to at least six herbicide modes of action and cannot be controlled, for example, with glyphosate (amongst others). The weed was discovered in the Douglas district of the Northern Cape in 2018 and initially identified by weed scientist Prof Charlie Reinhardt with the aid of DNA analysis. Weed scientists from various academic institutions, the Agriculture Research Council, CropLife SA supply members and the Herbicide Resistance Action Committee (HRAC) drafted [identification bulletins](https://croplife.co.za/HRACPalmerA) (<https://croplife.co.za/HRACPalmerA>) and an [emergency eradication plan](https://croplife.co.za/PalmerAmaranth) (<https://croplife.co.za/PalmerAmaranth>). An [Afrikaans guide for identification](https://croplife.co.za/PalmerIDGids) was also developed by SAHRI (<https://croplife.co.za/PalmerIDGids>). This was widely circulated in 2018 to catalyse a response from crop farmers in the summer rainfall region of South Africa. CropLife SA also engaged the Department of Agriculture, Land Reform and Rural Development by requesting the Minister in writing (September 2018) to declare the Palmer amaranth as an invasive species under the Conservation of Agriculture Resources Act, 1983 (Act No. 43 of 1983), involving officials in the Palmer amaranth action committee, and following up with written communications. A draft regulation to this effect was published on 24 December 2020 but the department has not yet formally promulgated the regulation to put control measures into effect.



Figure 1. Mature Palmer amaranth plants in full bloom



Figure 2. Palmer amaranth in maize.
George Prinsloo

The weed is spreading to other areas

During 2020, researchers discovered populations of this dangerous weed in the Limpopo Valley close to Pafuri and Mapungubwe, and Howick in KwaZulu-Natal. There is also a strong suspicion that the Palmer amaranth has hybridised with local *Amaranthus* species like *Amaranthus hybridus*; the hybrids do not resemble the Palmer amaranth, but DNA analysis confirmed that the plants that expressed strong resistance to herbicides, are most likely hybrids of *A. hybridus* and *A. palmeri*. The most recent discovery of the Palmer amaranth in Potchefstroom is of serious concern because it means the summer rainfall grain farming areas are likely to be invaded by this weed that will jeopardise crop production.

Decisive action is critical

CropLife SA urges all crop farmers and crop advisers to expend all efforts to eradicate the Palmer amaranth and all other *Amaranthus* species that occur on farms. The reason for such drastic measures is

that the Palmer amaranth hybridises with other Amaranth species and transfers its herbicide resistance to such hybrids. The Palmer amaranth also progressively develops resistance to herbicide modes of action that have been used successfully thus far, and therefore leaves farmers with little options to combat the invasion. Maize farmers are at severe risk of losing their crop fields to this weed if they do not take immediate action to eradicate the weed and to prevent it from seeding. Refer to the emergency eradication plan and implement all the elements of the plan. Failure to eradicate the Palmer amaranth at farm level will result in devastating weed impacts on crop production.

Farmers are also cautioned against buying animal fodder from areas where the Palmer amaranth is present because seeds may be present in feed that will infest Palmer amaranth free areas with the weed. It is a known fact that many Amaranth seeds are not destroyed by the ruminant digestive system and are able to pass through unharmed and remain viable, hence the common Afrikaans name “misbredie”.

Quotes from industry leaders and researchers about the Palmer amaranth

Chairman of the South African HRAC, Cullen Botes, said from international experience, that the



Figure 3. Stands of young Palmer amaranth plants. George Prinsloo

Palmer amaranth is one of the most noxious weeds and one of the weeds with the most confirmed resistance against the largest number of different herbicide modes of action. He said that the resistance of the Palmer amaranth against such a vast number of herbicide modes of action, is of serious concern. He warned farmers that it may not be possible to produce soybeans, dry beans and peanuts if the weed invades these production areas because very few herbicides are registered, especially for post-emergent broadleaf weeds, in these crops. It is unlikely that these crops will survive the onslaught of the Palmer amaranth. International data shows that the Palmer amaranth is present as a serious invasive plant in six countries and is resistant to 36 active ingredients of nine herbicide modes of action.

CropLife SA CEO, Rod Bell, said that the Palmer amaranth may destroy crop farming in summer rainfall areas if farmers do not expend all efforts to curb the spread of this aggressive weed. This was echoed by Chris Thompson of Laeveld Agrochem whose distribution company and crop advisers confirmed the presence of Palmer amaranth in the Potchefstroom district with the assistance of weed Professor Charlie Reinhardt. Professor Juan Vorster of the University of Pretoria already warned of Palmer amaranth spreading from the Northern Cape into other areas in 2020. He strongly suggested that this weed can potentially hybridise with indigenous *Amaranthus* species which will make crop farming extremely challenging if radical action is not implemented immediately.

Dr Maryke Craven of the Agriculture Research Council who assisted with the drafting of the information bulletins on the Palmer amaranth, expressed her fear for summer grain farmers if this aggressive weed is not rapidly brought under control. The spread of this weed to the summer production areas of South Africa will change the agricultural landscape of glyphosate tolerant crop technology in South Africa forever. It may sound excessive to call for eradication, but there is no other option than to remove the species completely from the South African agricultural sector - if not to secure and protect own production fields, then to protect those of neighbours. South African farmers can ill afford to ignore this dangerous weed and must collectively explore all possible avenues to rid the country of a species that spells doom for row crop farmers.



Figure 4. Young Palmer amaranth plants showing signs of resilience against herbicides. George Prinsloo

CropLife SA urgently requests that all farmers in the summer rainfall areas, especially those that grow maize, lucerne, cotton and beans do **not leave any *Amaranthus*** weeds unattended and eradicate such plants with mechanical means and the correct combination of herbicides as advised in the emergency eradication plan. Seedlings are the most vulnerable to the recommended herbicides, but once plants start flowering, they become increasingly difficult to control. Farmers need to act immediately or face extremely difficult weed infestations if they do not follow the advice of the plant science industry and weed scientists.

For more information, please contact:

Dr Gerhard Verdoorn, operations and stewardship manager on 082-446-8946 or gerhard@croplife.co.za