

Using weed to fight weed

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The most devastating weeds are usually found on farmlands degraded of fertility and they can make or break a farm and lead to a total loss of yield. Two types of grasses have wreaked havoc on farms in Nigeria: Spear grass (*Imperata cylindrica* (L) Beauv.) and Running Carpet grass (*Axonopus compressus*). The former is most common on degraded farms in the savannah areas, while the latter is mainly found in Nigeria's rainforest zone. Currently, these grasses infest thousands of hectares, and their elimination is required in order to rehabilitate the agricultural productivity of these areas.

Weeds as allies

Local farmers in southern Nigeria know that a number of broad-leaf (dicotyledon) weeds are capable of suppressing and, in time, replacing other weeds. They have found that a plant, known locally as "Awolowo" or "independence weed", is able to eliminate Carpet grass on degraded farms. However, Awolowo (*Chromolaena odorata*) can also become quite a menace itself (see Box 2). The capacity to suppress grassy weeds is not unique to Awolowo. It is known that a number of cover crops like *Centrosema pubescens* and *Mucuna pruriens* are also able to do this. As broad-leaf plants they compete vigorously with the grassy weeds for light, shading these grasses with their dense canopy and eventually containing their growth.

Box 1: The burden of weeds

Weed control may be one of the most labour intensive practices in crop production. In traditional Nigerian agriculture weeding is usually done by hand. In the tropical rainforest zone, three rounds of weeding are required before the crop is sufficiently well established to smother their growth. It has been estimated that in small-scale production systems weeding consumes between 30 to 54% of the total amount of labour, depending on the crop and the level of other available resources. It takes about 280 hours of labour to weed one hectare twice. Weeds are among the most serious pests farmers have to contend with, and fields are often abandoned when weed pressure become unmanageable.

- Source: Chikoye, D. 2000. **Weed Management in small-scale production systems in Nigeria**. In: *Agronomy in Nigeria* by M.O. Akoroda, Dept. of Agronomy, Univ. of Ibadan, Ibadan, Nigeria. pp. 153-156.

In order to get rid of Running Carpet grass farmers collect Awolowo seeds available in the vicinity of their farms and spread them in their fields at the beginning of the rainy season. After it has become established it is occasionally cut back (a process known as *slashing*) to encourage vigorous and timely re-growth. The slashed material itself is used as a mulch to further suppress the grass. The operation is considered successful if it suppresses the grass from maturing to the seed bearing stage. Awolowo is cut back up to three times, usually during the rainy season. This practice means that farmers have to leave their land fallow for a year or more, but they consider it a small price to pay as it is preferable to shifting cultivation sites every three or four years, just to get some relief from Carpet grass. Other options such as expensive herbicide are beyond the farmer's means.

We think that Spear grass can be dealt with in a similar way. This weed is already being suppressed using cover crops in Benin, where over 14,000 farmers are using *Mucuna* species to increase maize production and suppress Spear grass. However, using

Box 2: Awolowo, a "bad weed" revisited

Awolowo, also called "Siam weed" or "Independence weed", is a shrub native to South and Central America and can grow to more than three metres in height. In recent decades it has become a serious pest in the humid tropics of South East Asia, Africa and the Pacific Islands. However, some researchers and farmers have found it a useful ground cover under certain conditions. Farmers in South Cameroon have adopted *Chromolaena odorata* fallows in groundnut based cropping systems because of its accretion of organic carbon and plant nutrients. Its use as a natural weed suppressor is now under investigation.

However, the plant should only be used in areas where it is already common. It should not be introduced into new areas!

Awolowo or other cover crops to get rid of Spear grass is a more difficult business. This is because Spear grass does not reproduce through seeds but through stolons or shoots at, or just below, ground level, which take root and develop into new plants. These stolons must be dried out before Awolowo or cover crops are introduced. Fields infested with Spear grass need to be ploughed twice a year in the middle of the dry season, before the seeds of broad leaf plants like Awolowo, *Centrosema*, and *Mucuna* are spread at the beginning of rains. The exposed stolons dry out and the Spear grass plant cannot effectively reproduce. Ploughing also has to be repeated the following year to ensure that no stolons survive.

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Fighting to replace Spear grass (2) with *Centrosema* (1) and Awolowo (3) in Cross River State, South Eastern Nigeria. Photo: Paul B. Okon