

## Weed flora and the management strategy in intercropping cultivation

G. KUMARAVELU

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### SUMMARY

Weed populations in a sugarcane crop field mixed with groundnut, greengram and cowpea as intercrops were monitored till the harvest of mixed crops. Changes in the weed flora were recorded in three phases. Hand weeding/hoeing was carried out at 20, 40 and 60 DAS of mixed crops. A total of 32 weed species belonging to 28 genera and 17 families were associated with these crops. Among the monocot weeds, grasses like *Cynodon*, *Cyperus*, *Dactyloctenium* and *Eragrostis* were dominant. Among the dicots, the predominant ones were *Phyllanthus*, *Amaranthus* and *Acalypha*. Weed species like *Ammania baccifera*, *Prosopis spicigera*, *Ricinus communis* and *Croton bonplandianus* disappeared completely after hand weeding. At the time of harvest of the mixed crops, the entire field was rich in grass weed species but they were less in number and so did not affect the crop much. In the present study, it was noted that burning the soil debris at the time of ratooning the sugarcane, removed most of the plant pathogens and weeds. Moreover, after the sowing of mixed crop seeds, hand weeding/hoeing at three stages resulted in the reduction of the total number of individual weeds. The total number of weeds got reduced from 794 in the beginning to 114 at the time of harvest. Hand weeding/hoeing was the most effective weed control strategy in the study area.

**Key words :** Weed flora, Intercropping, Weed management

Weed science involves the study and control of the most aggressive, troublesome, and unwanted plants of the world's vegetation. Moore (1954) has defined a weed as "a plant which interferes with man's utilization of land for a specific purpose". A plant classed as a weed in one region eg. cultivated land may actually be cultivated in a different region for its medicinal uses. Some of the weeds help in improving the mineral richness of the soil and also provide a protective cover against soil erosion.

An important feature of weed growth particularly in competition with crop plants is the rapidity of growth, resistance to diseases and early maturity. Most of the annual weeds in the cultivated crop fields are destroyed before seed production. The spread of weeds in an agricultural land is largely due to the dispersal of seeds through manure, seeds already present in the soil as well as by the grazing animal. Pulse crops like cowpea, greengram and groundnut are grown for mixed cropping cultivation because of their low water requirements and deeper root system and they can easily be grown in many areas along with the main crop without any supplemental irrigation. Advantages of intercropping cultivation have been reported by many workers (Nair *et al.*, 1979; Ramdoss *et al.*, 1980; Rai, 1986; Sharma *et al.*, 1986; Patil and Mahendra, 1988 and Shah *et al.*, 1991).

The objectives of the present work are to find out the type of weed communities that invades the crop field

and to study the weed management techniques adopted by the farmers to improve the yield of mixed crops.

### MATERIALS AND METHODS

A brief survey of the literature showed that several works on the weed association with the main crop and mixed crops were undertaken in different parts of India. To get information about weed plants, it is necessary to make a survey of the fields in different areas. Hence, an attempt has been made to study the crop-weed association in the sugarcane field with mixed cropping cultivation. The present investigation was carried out at Vinayagampet village of Puducherry, India. In this area, sugarcane is the chief crop as this place is very near to a sugar mill.

To identify the weed communities, three surveys were conducted between Mid-December 2006 and Mid-March 2007. Weed counts (number/m<sup>2</sup>) were recorded at three stages, viz., 20, 40 and 60 DAS of pulse crops. The distribution of weeds was studied by quadrat method. The quadrats were taken at random, the size of the quadrat being kept 100 × 100 sq.cm. Ten quadrats were laid randomly in the field area of 60 × 20 sq.m. The number of dicot and monocot species present in each quadrat was recorded. To avoid the "edge effects", distorting the data, peripheral areas adjoining the bunds 50 cm from the margin of the bunds were excluded from the analysis.

The weed flora species were identified by using the Flora of Presidency of Madras (Gamble and Fischer, 1915 – 1938), Illustrations on the flora of the Tamil Nadu Carnatic (Matthew, 1982), Further illustrations on the Flora

### Correspondence to:

G. KUAMARAVELU, Department of Botany, Kanchi Mamunivar Centre for Post Graduate Studies, Lawspet, PUDUCHERRY (U.T.) INDIA