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WEEDS IN GROUNDNUT CULTIVATION AND THEIR MANAGEMENT

Thamizhiniyan.D[1], L. Vishalkumar[1], S. Elanchezhiyan[1]* and N. Indianraj[2]
[1]UG Scholar, [2]Assitstant Professor, Department Agronomy, Roever Agricultural college, Perambalur, Tamil Nadu.

Corresponding Author*

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ABSTRACT

This article deals about the weeds in groundnut cultivation and their managements. However India is the largest importer of edible oil and the weeds are the major challenges in the cultivation of groundnut. This study will analyse to control the weeds in groundnut crop, effect of weeds, methods to control weeds and limitation for using herbicides. Weeds are the major problem for groundnut cultivation and 30 to 34 % yields are reduced by weeds. Trichodesma indicum, Amaranthus viridis, Cynodon dactylon, Boerhaavia diffusa, Cyperus rotundus, Celosia argentena are the major weeds for groundnut that reduce the crop yield. There are various strategical approaches to control the weeds such as chemical method, biological method, mechanical method, and physical method. Chemical method is the best method for controlling the weeds in groundnut.

KEYWORDS: ***Groundnut, Weeds, Chemical method, Herbicides, Fluchloralin***

INTRODUCTION

Groundnut [*Arachis hypogea*] one of the major oilseed crop cultivated all around the world and also cultivated for its kernel which is rich in Protein. India is the largest importer of edible oil. Groundnut is a tropical plant requires a long and warm growing season. It grows well in areas receiving 50 to 125 cm of well-distributed rainfall during growing season, abundance of sunshine and relatively warm temperature. Soil temperature is an important factor and its effects are critical on seed germination, emergence of seedlings, early plant growth, rate of flowering, and pod development. When soil temperature goes below 19 ºC, emergence of seedlings is low. The optimum temperature for vegetative growth of groundnut is ranging in between 26 to 30 ºC depending on the cultivar. Reproduction growth is maximum at 24-27 ºC. Groundnut grows well in the well drained, light textured, loose, friable and sandy and sandy loam soils which help in easy penetration of pegs and their development and also harvesting. Groundnut is sensitive to soil salinity. It gives good yields in the soil having the pH between 6.0 to 7.5.This crop is usually cultivated in rice fallow field and utilizes the residual moisture after harvest of rice or with minimal irrigation of 5-9 times. Rabi groundnut is raised on coastal regions, river deltas of Krishna, Godavari and Cauveri and other irrigated areas in part of Tamil Nadu, Andhra Pradesh and Karnataka. In Summer season cultivation of groundnut is mainly taken in the states of Tamil Nadu, Andhra Pradesh, Karnataka, Gujarat and Maharashtra states (9-12 irrigations).In Spring season cultivation of groundnut is taken in the states of Uttar Pradesh, Punjab and West Bengal etc. (March to May).

WEED COMPETITION IN GROUNDNUT

Weed is one of the major concern in cultivation of groundnut. The major weeds in groundnut are *Trichodesma indicum, Amaranthus viridis, Cynodon dactylon, Boerhaavia diffusa, Cyperus rotundus, Celosia argentena* are mostly seen. Broad leaf and Annual grasses like *Amaranthus spp*. and *Cynodon dactylon* are majorly affect the groundnut crop .Nearly 30 to 34 % yields are reduced by these weeds depending upon their weed intensity. Weed infestation reduces the yield of groundnut about 74 to 92% in India. Due to high density of weeds, the sunlight gets obstructed, so photosynthesis can't take place and affects the crop growth. Fertilizer applied to groundnut crop was competitive by weeds Which, depleting the soil and affecting the crop growths. The critical stage of weed compete with groundnut occurs during 2 to 6 weeks after sowing.(R.Sathya Priya *et al., 2013).*

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Amaranthus viridis

Cyperus rotundus

Cynodon dactylon

Boerhaavia diffusa

Chloris barbata

Celosia argentena

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WEED MANAGEMENT

There are some methods to control & reduces the weeds in groundnut field .1) Cultural method 2) Mechanical method 3) Physical method 4) Biological method 5) Chemical method. All-India coordinated Research Project on Weed control, said that Imazethapyr, Pendimethalin, Diclosulam, Quizalofop-ethyle are the herbicide that control the major weeds in Groundnut cultivation. At 20 Day after sowing (DAS) after sowing. First Hand weeding must be done. After 35 DAS second Hand weeding must be done at 7-10 days interval till pegging starts. Intercropping practice in groundnut provide land utilization (R.S.Jat *et al.,2011).* By mechanical ways Sickling, Soil solarisation, Mulching are the possible ways to control the weeds. Biological controls ways is one of the best pollution free methods to control weeds. Biological method is not useful to control all types of weeds but weed population may be reduced. For example biological insect species to control weeds are Curculionid beetle, *Crocidosema lantana* moth, Hygrophila adult, *Ophiomya lantanaea* seed fly & cultivating Plant species like African marigold will reduce the Parthenium weeds. It shifts the crop-weed competition in favour to crop. Chemical method is one of the best methods to eradicate the weeds completely in Groundnut cultivation. Herbicides are the chemical that kills the weed completely and reduces the weed competition among groundnut crops. For Pre-sowing, soil application of Fluchloralin @ 2.01 litres/ha and incorporate followed by irrigation. For pre-emergence, spray Fluchloralin 2.01 litres/ha or Pendimethalin @3.31 litres/ha in 500 litres of water must be applied on the third day after sowing followed by irrigation (or) Apply Oxyfluorfen @0.24 g/ha with one hand weeding. Pre-emergence application of Pendimethalin and Imazethapyr are the effective way to control major weeds in groundnut cultivation(satyanarayan *et al.*,2021) For post-emergence application Imazethapyr @750 ml/ha at 20-30 days after sowing. Apply Quizalofop-ethyl @40 g/ha at 20 DAS with one hand weeding,(V.D.Vora *et al.*,2019) Propaquizafop , Fenoxaprop-p-ethyl are the some selective herbicide that controls the weeds in Groundnut cultivation.

Table 1: Herbicide Requirements for Groundnut

Herbicides	Recommended dose (kg/ha)	Mode of Applicaton
Fluchloralin	1.0-1.5	Pre- emergence
Pendimethalin	1.0-1.5	Pre- emergence
Oxyflorefen	0.25	Pre- emergence
Imazethapyr	0.075	Post- emergence
Quizalofop-ethyl	0.05	Post- emergence
Fenoxaprop-p-ethyl	0.1	Post- emergence
Metolachor	1.0	Pre- emergence

(B.Naveen Kumar *et al.,2019)*

Disadvantage of using herbicide in groundnut

*Herbicides contaminate the soil & pollute it.
*Herbicide-contaminated waters can be able to affect the aquatic –organism.
*Over dosage of herbicide may kill the Groundnut crop.
*Herbicides are risk to neighbours crop.
*Human health also affected by over use of herbicides**.**

CONCLUSION

From the above discussion ,we came to know that Pre- emergence application of Pendimethalin @3.31 litres/ha and Fluchloralin @ 2.01 litres/ha with one hand weeding is the most effective method for controlling weeds in a short period of time and increase the yield in groundnut cultivation**.**

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