

Weed Survey of Selective Crops in Dalori Village Of Konduga Local Government Area of Borno State

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Abstract: Survey was conducted in Dalori village of Konduga Local Government Area of Borno State during the rainy season of 2008 (August) with the objectives of identifying weed types in crops under semi-arid condition, the survey was carried out on six fields randomly selected with differences crops planted on them. The crops were groundnut, millet, cowpea, sorghum and cowpea and maize. The survey shows that the weeding frequency of sole cropping e.g. Field 1 and 6 was two times, only compared with 3 times in the mixed cropping Field of 2, 4 and 5. The result shows that weed occurrence and suppression was much less in the mixed cropping than the sole cropping. Different types of weed associate with different crops were identified but the most dominant ones are *Striga hermonthica*, on sorghum and millet and *Boreiora spp* on groundnut and cowpea. In conclusion, the mixed cropping offered an opportunity of weed control and that certain weeds are associated with particular crops e.g. *Striga hermonthica* on sorghum and millet, *Digilaria horizontalis*, *Pennisetum pedicellatum* in both sole and mixed crop systems.

Keywords: Dalori, Weeds, Crops.

1. INTRODUCTION

Weeds are unwanted and undesirable plants which interferes with utilization of land and water resource and their adversely affect human welfare (Bolley, 1908). They can also be referred to as plant out of place (Akobundo, 1980). Usually, this means that weeds grow where we either want either plants to grow or where we want no plants at all. In croplands and forests, weeds compete with the beneficial and desired vegetation, reducing the yield and quality of produce. Undesirable Vegetation also flourishes in aquatic system, forestry and on cropped areas such as industrial sites, roadside, railway line, airfields, landscape plantings, water tanks, waterways, e.t.c thus, all plants may become weeds in a particular situations.

Weeds are an important factor in the management of all kind and water resource, but their effective impact is greatest on agriculture. There is no reliable study of world - wide damage due to weeds. However, it is widely known that losses, caused by weeds exceed the losses from any category of agricultural pest, such as insects, nematodes, disease, rodents, e.t.c. of the total annual loss of agricultural produce from various pests, weeds account for 45%, insect 30%, disease 20% and other pest 5% (Packer *et al*, 1975)

They also form alternative host for pest and disease of crop plants. Therefore they can be sources of infestation or reservoir which tends to defeat the purpose of crop rotation, a method of -effective control of weeds. It also lower the profit of the farmer, for instance, bitter weeds add an undesirable flavor to milk cow that graze on them (Aldrich, 1984).

Weed seeds germinate earlier than crop seedlings, grow faster, they flower earlier and forms seeds in profession and mature ahead of the crop if infested (Coble, 1994). Nature has bestowed these qualities on weed so that their seeds are protected unwarily along with the produce of the crop at harvest and yet distributed to their places where its

produce may be taken. They have the remarkable capacity to germinate under varied condition, but very characteristically they are season -bound and the peak period of germination year after year (Bridges, 1994).

Weed seeds are so readily dispersed by natural agencies and by farmer himself. It is important to prevent weeds, whether in crops, on borders or bunds in fence or in irrigation canals, from flowering and setting seeds. Preventive method assists in sowing crop seed not contaminated with seeds, using mature and irrigation water not laden with trash and the enforcement of weed control laws and seed and seed certification measures. Measures against weeds comprise mechanical and integrated cultivation and mowing, cultural or cropping, biological and chemical means or a combination of them to control weeds effectively and economically (Holm, 1976). Various weeds are associated with particular crops in dipterocarp environment and could cause substantial damages to crop growth and yield. For example, sorghum is commonly associated with *Striga hermonthica*, *Dactyloctenium aegyptium*, *Pennisetum pedicella*, *Digitaria horizontalis* (Cobel, 1994).

The objectives of the study are:-

- I. To identify weed species associated with different crops grown on the field in a semi - arid environment,
- II. To determine the weeding frequency of commonly grown crops.

2. MATERIALS AND METHODS

Experimental Site:

A survey work was conducted during the rainy season of 2008 (August-October) in Dalori village of Konduga Local Government Area, Borno State, 11km away from Maiduguri (11°51', 13°15'E) (Fig.1) along Bama Road. This is to investigate the weeding frequency and types of weed in various crop and cover, i.e. infestation level on different crop fields.

Data collection was done by surveying six (6) different farms on the site and verbal interviews were administered to the farmers.

Data Collection:

Observation of weed infestation:

Observation was done by visual examination and grading, the infestation in the fields on a scale of 1-9 where 1 denotes no weed infestation and 9 denote will ground cover of weed infestation. This was done by a spot assessment at 3 locations in the fields diagonally in two direction and the mean per field was recorded.

Weed identification:

Weeds are identified by using flora-manual. Akobundu (1998). A general overview of weeds by identifying major and prevalent weeds were picked and then identified.

Data Analysis:

Data collected were compiled and descriptive statistics were used to analyze the data.

3. RESULTS

Land Preparation:

Different types of land preparation were done which include manual hoeing and oxen/tractor fields sloughing.

On Fields 2 and 5, the farmers used manual (hand hoeing) for their land preparations, while 1, 3, 4 and 6 they used oxen or tractor ploughs to cultivate their lands.

Weeding Frequency:

This is presented in Table 1. During the survey period, the farmers of all the fields told me how many times they weeded their farms. Field 1, the farmer weeded 2 times before harvesting, but the first weeding was in progress during- the survey and the second weeding will be in 3 weeks after the first weeding before harvest.

In Field 2, the farmer weeded 2 times for the millet and cowpea and will weed again after the millet is harvested. In Field 3, here the farmer also weeded his farm 2 times where the first weeding has been done for both cowpea and groundnut and the 2nd weeding for the cowpea will be done after harvesting the groundnut. In Field 4 was weeded 2 times in the farming season.

In Field 5 weeding frequency was 2 times for maize and there will be another weeding for cowpea after harvesting the maize.

In Field 6 weeding frequency, was 3 times for millet as a sole stand.

Weed Cover Score:

The weed cover score of each farm was recorded. Field 1 was having the highest number of weed score (8) while the Field 6 was the lowest. The rest of the field like Fields 2, 3, 4 and 5 were having weed cover of 6, 7, 5, and 6 respectively (Table 2).

Weed Species Commonly Found on the Field:

Weed species commonly found in the field were observed. And few were picked for identification- including the family of each weed species on different farm were noted (Table 4). The occurrence of each weed species show how severe they are to different farm crops.

Sole groundnut and sorghum have more weed infestation than the mixed cropping because they do not share weed infestation like that of mixed cropping. There is problem of weed infestation in sole cropping than mixed cropping e.g. grass weeds and labor demand are highly concentrated with peaks at sowing and harvesting times (Arnon, 1972)

Table 1: Weeding Frequency of Each Farm

Field	Crop combination	Weeding frequency
1	Groundnut (sole)	2
2	Millet + cowpea (mixed)	3
3	Groundnut + cowpea (mixed)	3
4	Sorghum (sole)	2
5	Maize + cowpea (mixed)	3
6	Millet (sole)	3

Table 2: Weed Cover Score in Crop Fields in Dalori Village

Field	Weed Cover Scores ¹	WAP ²
1	8	5
2	6	3
3	7	6
4	5	8
5	6	7
6	1	5

1= weed cover score based on a visual scale observation of 1-9

2= WAP-weeks after planting the crops on the field

Table 3: Crop planted, Time of Planting and Spacing

Field	Crop(s)	Time of planting (2014)	Spacing (cm)
1	Groundnut	June	25x25
2	Millet	Early June	50x50
	Cowpea	Late June	60 x60
3	Groundnut	2 nd week of June	30x60
4	Sorghum	Early June	25x60
5	Maize	1 st week of June	65x70
	Cowpea	1 st week of June	30x60
6	Millet	Early June	60x60

Table 4: Weed Species Commonly Found in Crop Fields in Dalori Village, Konduga Local Government Area, 2008.

S/n	Weeds spp	Family	Occurrence (*,**,***)						Farm Number (field)	
			1	2	3	4	5	6		
1	<i>Cynadon doctylon (L)</i>	Poaceae	-	*	*	-	*	*		
2	<i>Erragrotis tremula (L)</i>	Gramineae	**	***	***	**	**	**	*	
3	<i>Dactyloctenium aegyptium</i>	Gramineae	**	-	*	*	**	*		
4	<i>Striga hermonthica</i>	Orabancheceae	-	**	*	**	**	**	*	
5	<i>Striga gesnerioides</i>	Orabancheceae	***	**	**	-	*	-		
6	<i>Imperata cylindrical</i>	Gramineae	**	*	-	-	**	**		
7	<i>Cyperus rotundus</i>	Cyperaceae	***	*	-	-	*	-		
8	<i>Digitaria horizontalis</i>	Gramineae	***	**	*	-	*			

Occurrence

*Less severe

**Severe

***Very severe

-NO weeds

4. DISCUSSION

Mixed cropping is predominantly found in the surveyed area, with 70% of the surveyed farm planted with mixed crops, where weed infestation, were not much like that of sole cropping because weed suppressed more effectively under mixed cropping than sole cropping (Guyer, 1986). Weeding frequently of mixed cropping was 3 times, where 2 weeding were given for the first crop and third weeding is for this benefit of the 2nd crop after harvesting the first crop, while in sole cropping weeding was carried out 2 times only. Farmers often weed twice or thrice and many invariably sustain yield losses weeding at earlier stages of planting encourages the growth of the crops. This could be because of the timely weed removed before the onset of weed interference which was reported by Carson (1979) and Harmaton (1976) to be between 4 and 8 weeks after which weed have no influence on the crop. These confirm the idea that removal of previous weed is of vital importance in the maintenance of crop yield (Croster, 1998). Weeds compete for space, nutrient, water and light; although how seriously they will affect a crop depends on a number of factors. Some crops have greater resistance than others, - e.g. smaller, slower, growing seedlings are more vigorous (Zeesham, 2003).

The main priority after emergence is to keep the crop weed free, young crops are highly sensitive to competition from weeds and yield declines sharply if these are allowed to take hold. At this time the early raining, the farmers are often extremely busy with other task with the result that weeding tends to be delayed.

The weeding frequency of each farm is different from each other due to the fact that different crops were planted on different fields (table 1).

Field 2, 3, 5 and 6 were mixed cropping with the weeding frequency of 3 on each farm while and 4 are sole cropping with the weeding frequency of 2 on each farm (Table 1).

Estimate show that weeds co-exist harmoniously for about 3 weeks therefore it is important that weeds are removed early in order to prevent competition from occurring (Moody, 1973).

5. SUMMARY AND CONCLUSION

Summary:

The survey of weeding frequency and type of weeds in crops was conducted in Dalori village of Konduga Local Government Area, Borno State in August 2008. This is to observe flora and weed cover i.e. infestation level or different crop fields. The data collection was done by surveying 6 different farms in the field and verbal interviews were done with farmers. The weeding frequency on each farms were 3 times and 2 times before harvest for mixed crop fields and 2 times for the sole crop farms respectively. Among the types of weed are *Striga hermonthica* 011 cereals, *Digitaria horizontalis* and *Striga gesnerioides* on legumes.

Conclusion:

In conclusion, mixed cropping is more common than sole cropping in this area. This system helps in controlling weeds than sole cropping since it suppresses weed more than sole cropping. There are weeds specific to crops such as are *Striga hermonthica* on sorghum and millet, *Digitaria horizontalis* on groundnut, and *Striga gesnerioides* on cowpea.

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