

A Survey of Agricultural Chemicals Available to Farmers in South Western Nigeria

Olabode, O. S., G. O. Adesina and T. R. Olapeju

Department of Agronomy, Faculty of Agricultural Sciences,

Ladoke Akintola University of Technology, P.M.B. 4000, Ogbomoso

e-mail: yinka_labode@yahoo.com

Abstract: Agrochemicals has remained the main-stay of agriculture all over the world due to benefits including; reduction of drudgery, timely and efficient weed control, effective pest control and enhancement of the shelf life of agricultural produce. Adequate availability of appropriate agrochemicals to farmers is therefore a pre-requisite to enhanced crop production. A survey of availability of pesticides to farmers in South Western States of Nigeria (Oyo, Ogun, Osun, Lagos, Ekiti and Ondo) was carried out to assess the availability, price and quality of the pesticides in respective states. The survey revealed that Ekiti and Ogun states have the highest volume of both herbicides, insecticides and fungicides, followed by Lagos, Ondo, Oyo and Osun in that order. The use of fumigant is very low across the states with only Oyo and Ekiti States showing traces of its use. Fumigants were unavailable in all the shops sampled in other states. Fungicides were popular only among the tree crops growing states of Ondo and Ogun while Paraquat was the most common herbicide across the states. DDVP was the commonest insecticides while forcelet (carbendazim), a very effective fungicide, was the most available in the sampled states. It is evident from the survey that there is the need for more awareness to be created for farmers in the study areas to improve on the efficient use of chemicals for enhanced production.

INTRODUCTION

The growing demand for food arising from the daily increase in population the world over has called for a more drastic means of combating the identified problems of agricultural productivity. In Nigeria, as in other tropical countries, the problems of crop production among others include those of weeds (Akobundu, 1987) and pests.

Over the years, various agrochemicals have been used to combat these problems with a view to improving overall yield per plot. Agricultural chemicals are chemical agents used in enhancing food production. Among such chemicals are herbicides, fungicides, insecticides, nematocides and fumigants. Broadly, they are jointly referred to as pesticides.

Pesticides therefore are all substance(s) used for controlling, preventing, destroying or repelling any pest (Liebman, 1993; Oudejans, 1994).

Many pesticides are available today for the control of unwanted organisms. The importance of these pesticides cannot be overemphasised in present day agriculture. This is due to the fact that more land needed to be put under cultivation to meet up the rising demand for food. Also, since the agro-allied products that are produced will have to be stored, there is the need for chemicals that will assist in the keeping quality of such produce. Furthermore, with the introduction of new varieties of crops, especially those with higher yield and better quality, it become more pertinent to step up protection against pest and pathogenic organisms as such

crops are usually more susceptible to pest and diseases, and will achieve the objective of high yield and quality (Moore, 1980).

Herbicides are the most widely used class of pesticides in the world, accounting for 44% of all sales in 1988 (Conko *et al.*, 2002). In the United States, more than 90% of the total mass of pesticides applied each year is herbicide (Conko *et al.*, 2002). In the last 100 years, the use of herbicides has led to increase in the food basket of the world geometrically by boosting agricultural productivity (Anonymous, 1992).

From the foregoing therefore, it is perfect to state that the development and hence productivity of agriculture is directly related to availability of pesticides. In the light of this, the objective of this work is to examine the extent to which various types of agricultural chemical are available to farmers in the South Western States of Nigeria. The specific objective is to examine the extent to which famers embrace the available chemicals

MATERIALS AND METHOD

Study Area

The study was carried out in the South Western region of Nigeria. The states in the region include Oyo, Osun, Ekiti, Ondo, Ogun, and Lagos States.

Population of the study

The population of the study comprise all the farmers in the South Western region of Nigeria. This constitutes the sampling frame within which the respondents were selected.

Sampling procedure

One to three towns with major farmers' centre were selected for the survey and three farmers' centres were selected from each state. In each of the three farmers' centres randomly selected in each of the major towns/cities, survey was carried out on the type of agricultural chemicals present in the shop. Ultimately, 26 centres were sampled. These agricultural chemicals were grouped under the following sub-headings: Herbicides, Insecticides, Fungicides and Fumigants. The manufacturing and expiration dates of each of the chemicals were noted and recorded. The data collected were described using descriptive statistics. These locations are as listed in Table 1.

Table 1: States and major towns/ cities where farmers' centres were located

State	Town(s)
Oyo	Ibadan, Oyo, Ogbomoso
Osun	Osogbo, Ede
Ekiti	Ado Ekiti
Ondo	Ondo
Ogun	Abeokuta
Lagos	Ikeja

RESULTS AND DISCUSSION

The agricultural chemicals available to farmers in the study area were presented in Table 2. It was revealed that Ogun and Ekiti states have the widest range of herbicides with an average of nine herbicides in their centres, followed by Lagos state. Ondo state has the lowest number of herbicide with an average of three herbicides.

For insecticides, Ekiti and Lagos states have the widest variety of insecticides available in their centres. Each of them has 8 various types of insecticide. They were closely followed by Ondo and Ogun states. Osun state has the lowest number of insecticide available in their centres. Furthermore, Table 2 shows that Ondo, Ogun

and Lagos state have the widest range of available fungicides. This could be as a result of predominant tree crop production activities in the states. It is well known in Nigeria that Ondo state top the list in Cocoa production (Morton and Staub, 2008; Ogunlade and Aikpokpodion, 2010) which involves heavy use of fungicides for the control of fungal diseases including black pod disease caused by the fungus *Phytophthora palmivora*. This may be responsible for the wide range of fungicide available in the state. The popularity of fungicides in Lagos in spite of the fact that Lagos is not known for tree crop production may be explained in terms of Lagos being the major commercial centre with many distributors and agro-allied chemical companies from where sellers all over Nigeria restock their warehouses.

Fumigants are not available to most of the farmers in the study area. This may be due to the fact that not many farmers store their farm

produce. The bulk is sold immediately or shortly after harvesting as fumigants are mostly used for storage purposes. On the whole, Ekiti state has the widest range, 18 types of agro-chemicals available to the farmers, followed by Lagos, Ogun and Ondo states in that order. Osun state has the least number of agricultural chemicals. The poor availability of a wide range of agro-chemicals in Osun and Oyo states may be due to low production of tree crops such as cocoa, kolanut etc (Sanibel, 1999; Ogunlade and Aikpokpodion, 2010)

In all the farmers' centres sampled, 46.2% of them have less than 6 types of herbicides available for sale. The implication of this was that the farmers will not have enough choice in term of variety and type (Tilman, 2000).

Table 2: Mean frequency distribution of the number of Agricultural chemicals available in each of sampled states.

States	Herbicides	Insecticides	Fungicides	Fumigant	Availability
Osun	2.8	3.4	0.6	0	6.8
Oyo	4.7	4.3	0.56	0.22	9.78
Ekiti	9	8	1	0.23	18.33
Ondo	8	7.3	2	0	17.3
Ogun	9	7.3	1.67	0	17.97
Lagos	8	8	2	0	18

Table 3 shows that *Gramozone* containing *paraquat* was the commonest (57.0%) in all the shops sampled. This is followed by *altraforce* (46%) *paraeforce* (*paraquat*) 38.5. Force up (*glyphosate*) 27%. Force uron (*diuron*) 27% and fusillade (*fluazifop-butyl*) 27%.

Also, 38.5% of the centres have less than 6 insecticides available for sale. Table 4 shows that DD force containing DDVP is the

mostly available of them in the shops sampled. This is follow by *act-force* and *thionex* 31%, *karate*, store force and *cyperforce* 23%, then *Lara force*, *nuvacron*, *monoforce*, *dimeforce* and *cyperdicot* which are available in only 19% of the sampled shops.

Table 3: Checklist of herbicides encountered during the survey and their frequency distribution within farmers' centre visited

Herbicide (Trade Name)	Classification (Pre/Post Emergence)	Availability		Non-Availability	
		Frequency	%	Frequency	%
Weed off	Post -E	5	19.2	21	80.8
Proper care		1	3.8	25	96.2
Cutlass	Post -E	1	3.8	25	96.2
Slasher	Post -E	1	3.8	25	96.2
Gramozone	Post -E	15	57.7	11	42.3
Ravage	Post -E	5	19.2	21	80.8
Paraquat	Post -E	3	11.5	23	88.5
Agro tone		1	3.8	25	96.2
Parae force	Post -E	10	38.5	16	61.5
Weed crush	Post -E	5	19.2	21	80.8
Dizmazine	Pre -E	3	11.5	23	88.5
Round up	Post -E	12	46.2	14	53.8
Up root	Post -E	1	3.8	25	96.2
Glycel		6	23.1	20	76.9
Fitscosate	Post -E	6	23.1	20	76.9
Vinash		3	11.5	23	88.5
Sansate	Post -E	2	7.7	24	92.3
Dizensate	Post -E	4	15.4	22	84.6
Transmite		2	7.7	24	92.3
Touch down	Post -E	2	7.7	24	92.3
Glycot		2	7.7	24	92.3
Clear weed	Post -E	1	3.8	25	96.2
Force up	Post -E	7	26.9	19	73.1
Betrazine	Pre -E	2	7.7	24	92.3
Altra force	Pre -E	12	46.2	14	53.8
Cotrazine	Pre -E	3	11.5	23	88.5
Primextra gold	Pre -E	7	26.9	19	73.1
Pendlin	Pre -E	5	19.2	20	80.8
Force top	Post -E	3	11.5	23	88.5
Delmi forte		2	7.7	24	92.3
Vestamine		2	7.7	24	92.3
Amino force		2	7.7	24	92.3
Herbex- Dsl		1	3.8	25	96.2
Force uron	Pre -E	7	26.9	19	73.1
Dietop		3	11.5	23	88.5
Fusilade	Pre -E	7	26.9	19	73.1
Butaforce		4	15.4	22	84.6

NB: Post -E = Post Emergence
 Pre -E = Pre Emergence

Table 4: Checklist of Insecticides encountered during the survey and their frequency distribution within farmers' centre visited

Insecticides (Trade Name)	Availability		Non-Availability	
	Frequency	%	Frequency	%
Lara Force	5	19.2	21	80.8
Karate	6	23.1	20	76.9
Store Force	6	23.1	20	76.9
Act force	8	30.8	18	69.2
Dizpyafos	4	15.4	22	84.6
Pinex 48EC	2	7.7	24	92.3
Termex	1	3.8	25	96.2
Tremicot	2	7.7	24	92.7
Tricel	1	3.8	25	96.2
Gammalin 20	1	3.8	25	96.2
Nuvacron	5	19.2	21	80.8
Vestafos	1	3.8	25	96.2
Mono force	5	19.2	21	80.8
Cotchem	1	3.8	25	96.2
Diazol	2	7.7	24	92.3
Basudin	2	7.7	24	92.3
Thionex	8	30.8	18	69.2
Endocel	1	3.8	25	96.2
Endo force	7	26.9	19	73.1
Endo cot	2	7.7	24	92.3
Endo farm	1	3.8	25	96.2
Thiodan	1	3.8	25	96.2
Dime Force	5	19.2	21	80.8
Perferkthion	2	7.7	24	92.3
Cyperdicot	5	19.2	21	80.8
Dimethoate	1	3.8	25	96.2
Deltapad	2	7.7	24	92.3
Dash	4	15.4	22	84.6
DDVP	1	3.8	25	96.2
Pest off	1	3.8	25	96.2
Rhonchlorv	1	3.8	25	96.2
Cyperforme	6	23.1	20	76.9
Best cypermethrin	4	15.4	22	84.6
Best action	3	11.5	23	88.5
Unden 20	3	11.5	23	88.5
Smash	1	3.8	25	96.2
Dizvan	4	15.4	22	84.6
Delvap	4	15.4	22	84.6
Capsifox 20	1	3.8	25	96.2
Cyperforme	1	3.8	25	96.2
DD force	12	46.2	14	53.8

Furthermore, 46.2% of the centres did not have any fungicide for sale, while there were only 12 brands of fungicide available in the 14 centres that have the product (Table 5). *Forcelet*, *nordox 72*, *ridomin plus*, and *Z-force* are the

most prominent of them all. In these centres where fungicides is not on sale, farmers are at the mercy of fungal diseases Also, 88.5% of the centres did not have fumigants with the remaining centres having only *phostoxin* and

aluphos in their stock (Table, 5). However, lack of adequate storage facilities by the resource poor farmers may be responsible for the low patronage for fumigants (Robert, 1985). This inadequate availability and use of the requisite chemical preservatives (e.g. fungicides) could be

responsible for high storage losses often recorded in the tropics. When all the data were pooled together, it was obvious that 50% of the farmers' centres had more than 13 agro-chemicals in form of pesticides to sell to the farmers around them.

Table 5: Checklist of Fungicides and Fumigants encountered during the survey and their frequency distribution within farmers' centre visited

	Availability		Non-Availability	
	Frequency	%	Frequency	%
Fungicides (Trade Name)				
Team	1	3.8	25	96.2
Coacobre	1	3.8	25	96.2
Copper nordox	1	3.8	25	96.2
Funguran -OH	3	11.5	23	88.5
Chanp Dp	1	3.8	25	96.2
Nordox 72	4	15.4	22	84.6
Ridomin plus	4	15.4	22	84.6
Z-force	4	15.4	22	84.6
Forcelet	5	19.2	21	80.8
Seed plus	2	7.7	24	92.3
Dress force	1	3.8	25	96.2
Apron plus	1	3.8	25	96.2
Fumigants (Trade Name)				
Phostoxin	2	7.7	24	92.3
Aluphos	1	3.8	25	96.2

SUMMARY AND CONCLUSION

Having examined the availability of agricultural chemicals to farmers in southwestern state of Nigeria, the result showed that majority of the south western states need to boost their agriculture through better awareness to the farmers and see to the need for appropriate use of pesticides. These will automatically stimulate purchase and enhance productivity. It is also anticipated that with stimulated purchase, little or none of the pesticides will expire before sale to farmers. As a follow up, proper extension work is also required to educate the farmers on the

appropriate choice, and effective use of the pesticides.

REFERENCES

- Akobundu, I. O. (1987). Weed science in the tropics: principle and practices. John Wiley and sons N.Y. 522pp.
- Anonymous (1992). Environmental protection Agency (EPA): Pesticides industry 1990-91 Office of pesticide programs fall. Washington D.C 75 pp.
- Conko, G. and C. S Prakash (2002). "Bathing Hunger with Biotechnology" Economic perspectives vol. 7 No. 2

- Liebman, M. and E. Dyck (1993). Weed management: A need to developed ecological approaches. Ecological application (3) 1:39- 41.
- Moore, N. (1980). History of Agricultural Chemicals. Publication No 215 of Department of Corp Science, North Carolina State University
- Ogunlade, M. L. and P. O.Aikpokpodion (2010). Physico-chemical Properties of Selected Cocoa soils in three cocoa growing Ecological Zones of Nigeria. Proc.44th Annual Conf., Agric. Soc. of Nig.: 1547pp.
- Oudejans A. Y. (1994). The history of pesticides. Accessed at URL <http://pr.hec.gov.pk/Chapters/2953H-1.pdf> on 25 October 2010
- Robert, O. A. (1985). History of fumigants. National Research Council, National Academy Press. Washington DC. Vol.7:8. pp
- Sanibel, J.D. (1999). Fungicides. Journal of Applied Ecology, Vol. 34, Issue 6.
- Tilman, R.A (2000). Identification of Herbicides. *New Research*. National Academy Press, Washington DC.
- Vince, M. and S. Theodor (2008). A short history of fungicides. APSnet Feature. Accessed at URL: <http://www.apsnet.org/online/feature/fungi> on 8 March 2008