

PN-ALD-096

12.1.6252E

AGRICULTURAL TECHNOLOGY IMPROVEMENT PROJECT

(ATIP)

MISCELLANEOUS PAPER

A CRITICAL ANALYSIS OF HEALTH HAZARDS ASSOCIATED
WITH AGRICULTURAL ACTIVITIES IN BOTSWANA
AND HOW THEY AFFECT WOMEN

NUMBER: ATIP MP 89-4

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APRIL 1989

PRINTED: June 30, 1989

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ACKNOWLEDGEMENTS

I would like to thank all those people I interviewed in the process of writing this paper. It is through their invaluable contributions that I managed to organise material for this paper.

Ms. Yvonne Merafe played an important role in the initiation of this endeavor. Her constructive suggestions are very much appreciated.

Special thanks go to the ATIP Francistown secretary who typed the paper for me. Lastly I would like to express my appreciation to my supervisor, Dr. Frederick Worman, for his guidance in planning and organising material for this paper. Dr. Worman not only guided me but also spent a lot of time typing and reviewing the paper to make it readable. It should be noted, however, that any errors that appear remain the responsibility of the author.

A CRITICAL ANALYSIS OF HEALTH HAZARDS ASSOCIATED WITH AGRICULTURAL ACTIVITIES IN BOTSWANA AND HOW THEY AFFECT WOMEN¹

INTRODUCTION

The problem of occupational health hazards is usually associated with industry. This, however, may be a function of the level of development of a country. When talking of developing countries, which are mainly agrarian, one cannot address the problem of occupational health hazards and not address those faced by farmers. Since women form the bulk of the agricultural labour force in many developing countries, it becomes evident that they are a particularly vulnerable occupational group with regard to farm hazards.

Recent literature on development suggests that women have increasingly dominated the subsistence farming sector in Africa (Ingrid Palmer, cited in Rodgers, 1980). As noted by Guyer (1986), African agricultural production is dependent on women and will continue that way for the foreseeable future. In support of this, Baum and Tolbert (1985) pointed out that women provide an estimated 50 to 80 percent of agricultural labour. This is particularly true in countries, like Botswana, where male migration for wage employment has been so prevalent (Kerven, 1984).

As a result of male out-migration in Botswana, women find themselves in control of almost all of the stages of the food production process. During the process, they inevitably are exposed to multiple hazards which put not only their own health at risk but that of the entire family as well. As indicated in Baum and Tolbert (1985), women prepare and allocate the food, instill sanitation and hygiene habits, and provide first aid medical care. In view of this, women have an important contribution to make towards the welfare of the nation and therefore their occupational health needs require special attention.

OBJECTIVES

The objectives of this paper are:

1. To discuss factors which make women in agriculture a vulnerable occupational group.
2. Identify major occupational health hazards faced by women in agriculture, and point out possible means available for protecting and promoting the health of women as they carry-out agricultural related activities.
3. Suggest possible strategies to be considered by the Ministry of Agriculture and policy makers to help improve the health and safety of women working in the agricultural production process.

¹ Paper presented to Workshop on the Health and Safety of Women at the Workplace in Botswana, June 26th-28th, 1989, Gaborone.

The paper will pay attention to areas of agriculture which are mainly women dominated. These will include arable agriculture, smallstock, and horticultural production. Since these areas are prone to pests, and farmers are likely to be lax with, or uninformed about, pesticide use to the detriment of their health, special emphasis will be on safe and effective use of agro-chemicals.

FACTORS INFLUENCING HEALTH HAZARDS FACED BY WOMEN FARMERS

It should be noted that most of the health hazards are not specifically related to women farmers. However, in the past it appears that tradition and circumstances dictated that the woman's work place would be the farm. Seemingly, over time this has been accepted as the norm and has made women bear most of the work of production. Consequently, they have become vulnerable to most of the hazards encountered in subsistence agriculture.

The following are factors influencing women's occupational health hazards in agriculture:-

1. Women as "beasts of burden". As was mentioned earlier, women perform multiple roles pertaining to the food production process. They are basically responsible for most of the operations on the farm starting from production and storage through marketing and food preparation. As suggested by Wahyuni, Knipscheer and Gaylord (1987), women are also the primary decision makers in the area of small animal health.
2. Lack of awareness. People are often not aware of the dangers associated with certain farm operations, for example, use of agro-chemicals (fertilisers, insecticides, pesticides, etc). This occurs when farmers cannot read and comprehend instructions. Out of ignorance farmers may buy very toxic substances, like BHC whose residual effect is at least 30 days (see Appendix 2). There is no guarantee that farmers know what the instructions mean even if they can read them.
3. Laxity in following instructions. It is possible that farmers could decide not to follow recommended application rates or use certain chemicals on their own irrespective of recommendations. This could be hazardous to both the farmer and the end-user.
4. Improper disposal of chemical containers. Farmers may decide to re-use empty chemical containers. This could be hazardous to the whole family.
5. Legal issues. There may be limited legislation governing the importation of chemicals into the country. As a result, very toxic chemicals could be available in the market. This could lead farmers to use chemicals which would put their lives at risk. (See list of chlorinated hydro-carbons in Appendix 2.)
6. Improper storage of chemicals. Chemicals may be stored in places where they can poison food and/or will be accessible to children.
7. Presence of children. Women farmers perform many of the farm operations while carrying babies on their backs. As such, hazards may possibly affect both the mother and the child. There are cases where women farmers take older children along and have them play in the field unattended. This is also potentially dangerous.

8. Health habits. Non-stringent health habits especially in areas where water is scarce can increase health risks. It is possible that farmers could disregard safety precautions and handle food or nurse children before washing their hands and faces after handling chemicals.
9. Improper clothing. In general, farmers do not use the right clothes for the type of work they do.

LIKELY HAZARDS AND POSSIBLE MEANS AVAILABLE TO ENSURE SAFETY OF FARMERS AT WORK

Some farmers and agricultural personnel were interviewed about possible hazards pertaining to farming operations and what is normally done to promote the health of women farmers. The results are as shown in Table 1.

POSSIBLE POLICY ADJUSTMENTS AND STRATEGIES TO IMPROVE THE HEALTH AND SAFETY OF WOMEN AGRICULTURAL WORKERS

1. The Ministry of Agriculture should have at least biannual courses to update Agricultural Demonstrators, Pest Control Scouts and Veterinary Assistants on newly introduced pesticides and also to emphasize the importance of close farmer monitoring. In turn agricultural staff should have frequent demonstrations on safe handling, usage and storage of chemicals (pesticides, insecticides and fertilisers) in order to reduce the risk to both the users and consumers.
2. Government could prohibit, or pass legislation restricting, the use of very toxic agro-chemicals and promote the use of less toxic chemicals.
3. Farmers need to be made aware of the dangers associated with chemical usage and a strong education programme should be initiated to ensure that farmers adhere to safety precautions.
4. As suggested by Gladwin and McMillan (1989), labour saving technologies could be introduced to lessen the burden and stress on women farmers. Where possible credit could be provided for purchase or hire of such technologies.
5. Health campaigns can be initiated all over the country to ensure that farmers practice good sanitation and health habits, e.g., refraining from drinking contaminated milk and water, and keeping away from sick animals.
6. Government could have training programmes to help farmers tame aggressive animals to prevent injuries.
7. Government could continue to improve rural health systems to ensure that effective health service delivery is available to properly treat injuries and other health problems.

CONCLUSION

It can be argued that in actuality not many rural farmers in Botswana are mechanized or use chemicals. This may be true, but given the rate of technological advancement and how keen farmers are to learn about new technologies, there is an urgent need to educate farmers about the importance of safety and health in agriculture. Whether or not farmers presently use agro-chemicals, or agricultural machinery, it is likely that in a few years most farmers will be mechanized and agro-chemical usage will be more prevalent. It is also important to educate farmers that while it is important to improve their farming practices, it is also crucial to ensure the safe usage of such practices.

TABLE 1: AGRICULTURAL ACTIVITIES AND ASSOCIATED SAFETY HAZARDS

ACTIVITY	LIKELY HAZARDS	WHAT IS BEING DONE OR WHAT DO FARMERS DO TO PROTECT THEMSELVES
Spanning cattle	-Injury from the animal. Cuts/bruises	-Wash with hot salty water -Sterilise with methylated spirit -Use traditional medicine (Monepenepe)(Mmalegonyana)
Ploughing -manual -mechanical	-Injury from the equipment -Injury from the equipment -Siphoning petrol from a container into a tractor	-As above -As above - ?
Weeding -manual -mechanical	-Injury from the hand-hoe cuts/bruises -Injury from the harrow spikes or cultivator	-Same as for cuts and bruises -Same as for cuts and bruises
Fertilisation	-Food poisoning -Poisoning of children	-Drinking fresh goat milk
Pest control -spraying for ticks in smallstock -spraying crops	-Inhalation -Ingestion -Through the skin -Harvesting crops before its safe to do so -Poisoning of children	-To ensure safe and effective ways of using pesticides, the Ministry of Agriculture's Pest Control Unit hands out posters and booklets to Agricultural Demonstrators and Pest Control Scouts*
Harvesting	-Snake and scorpion bites -Carrying heavy loads over long distances/weakening and stressful	-Use snake poison mixed with herbs - ?

TABLE 1: AGRICULTURAL ACTIVITIES AND ASSOCIATED SAFETY HAZARDS
(CONTINUED)

ACTIVITY	LIKELY HAZARDS	WHAT IS BEING DONE OR WHAT DO FARMERS DO TO PROTECT THEMSELVES
Threshing	-Injury from sticks cuts/bruises	-As above
Winnowing	-Husk dust allergies	- ?
Herdng animals	-Snakes and scorpion bites	-For snake bites farmers use treated snake poison
Milking	-Kicked by animals or injured by the horn -Contacting communicable diseases e.g., brucellosis from drinking infected milk	-Hot water and methylated spirit -The effects may be long term and go on unnoticed.
Physical handling of animals	-Disease risk from handling rabid animals (dogs, goats, cats, cattle, etc	-Try to keep away from rabid animals or kill them
Women in Live- stock Advisory Centres	-Exposed to chemical poisoning some of which might have long-term effects -Obnoxious smells from chemicals	-Supposed to have an office isolated from where chemicals are stored. - ?
Aerial spraying of quelea birds	-Risk of water poisoning	-Try to avoid areas with contaminated water. But how effective is that?
Drinking stagnant water from ponds, wells and rivers	-Health hazards from drinking contaminated water	-In some areas there are ALDEP water tanks -Some farmers claim they boil water before drinking and some don't
Multiple activi- ties/over-work	-Stress to expectant mothers, nursing mothers and their children	- ?

? Indicates not much is done.

* The instructions are as depicted in Appendix 1. Given the technicality of the instructions, one wonders how many farmers understand them or ever seek advice as to how pesticides are used.

APPENDIX 1

GUIDELINES FOR USE OF PESTICIDES

1. Seek advice on pest problems and pesticide use.
2. In transit, keep pesticides away from passengers and foodstuffs.
3. In storage, separate pesticides from other foods.
4. On the farm, keep pesticides securely out of reach from children (and irresponsible persons).
5. Read the label and get advice before using a pesticide.
6. When mixing, follow dosage recommendations, and wear protective clothing. Keep children and animals away.
7. Burn empty containers.
8. Never pour pesticides into drink bottles. Do not use empty containers for storage of food or water.
9. Do not use leaking or defective equipment.
10. Do not dust or spray pesticides into the wind.
11. If contaminated, remove clothing and wash skin.
12. Never allow children to apply or use pesticides.
13. Do not contaminate the environment by the misuse of pesticides.
14. After handling pesticides, wash hands and face before eating, drinking, or smoking.
15. In case of poisoning, obtain medical attention quickly and show the pesticide label to the doctor.

Source AGRINEWS. Ministry of Agriculture, Vol 20, Number 5, May 1989

APPENDIX 2

LIST OF COMMONLY USED AGRO-CHEMICALS AND THEIR RESIDUAL EFFECTS

AGRO-CHEMICAL	USE	RESIDUAL EFFECT*
PESTICIDES**		
Rogor/Dimethoate	Control of Aphids	10 days
Carbaryl	Bagrada bug	7 days
Folidol	Bagrada bug	21 days
Alphamethrine	Stalkborer control	14 days maize, 7 days legumes, 28 days sorghum
INSECTICIDES*** (ORGANO-PHOSPHORUS COMPOUNDS)		
Diazinon	Insects general	14 days veg/28 days oranges
Dichlorvos	Lice/fleas	14 days
Fenthion	Lice	14 days/45 days milk animals
Malathion	Insects general	3 days
(CHLORINATED HYDROCARBONS/ORGANOCHLORINES)		
DDT	Insects - Dipping for external pests -general dusting	20 days
BHC	Bagrada bug and moths	30 days
Dieldrin	Stalkborers	70 days
Toxaphene	Insects general	

* Consumption of the crop is deemed safe a certain number of days after application of the chemical (see stipulated number of days on the above table).

** Source: Horticultural Unit

*** Source: Veterinary Services

NOTE THAT MOST OF THESE CHEMICALS ARE VERY TOXIC AND HARMFUL WHEN SWALLOWED

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