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FRUITS PROCESSING AND PRESERVATION IN AKWA
IBOM STATE: THE ROLE OF WOMEN IN AGRICULTURE
UNIT OF THE AKWA IBOM AGRICULTURAL DEVELOP-
MENT PROGRAMME

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ABSTRACT

This paper analyses the activities of the Women-In-Agriculture (WIA) unit of the Akwa Ibom Agricultural Development Programme (AKADEP), in terms of fruits processing and preservation, which is aimed at ensuring all year round availability. It is revealed that the WIA unit utilises enlightenment campaigns, extension agents and radio programmes to disseminate information on different methods of preserving and processing fruits, like dehydration, canning, bottling and jam making, etc. The WIA is however faced with many constraints which are identified and recommendations proffered for enhanced effectiveness.

INTRODUCTION:

Fruits are fully grown fertilised ovary containing fully developed ovules, called the seeds (Pereira et. al, 1977). Fruits are valuable because of the natural roughage they contain, which help the bowels to perform naturally and also help to rid the body of poisons. Fruits play an important role in the diet of many people in the tropics, providing essential minerals and vitamins and adding flavour, colour and variety to what would otherwise be a monotonous diet.

serving and hence extending the shelf-life of fruits so as to make these products more readily available at affordable rates, even during off seasons.

In Akwa Ibom State, the prevalent fruits are mango, pawpaw, orange, guava, pineapple and banana; among others. Most of these fruits are available throughout the year, however they have their peak periods, which are mainly in the dry season.

Ruth (1972) asserted that fruits in the natural cycle of life grow, mature, then decay and return to the soil. During the peak period of fruits production in Akwa Ibom State, they are always found in excess. A few months later though, drastic shortage sets in, due to deterioration and eventual spoilage. The decay of fruits is caused by enzymes in the fruits and further hastened by yeast, moulds and bacteria which are present on them (Reilly-Wright, 1980). In other words, to preserve fruits, the enzymes and microbes must either be destroyed or, at least, rendered inactive by either changing the form of the fruits, for storage; or by subjecting them to unfavourable environmental conditions, such as excessive heat and air-tight environment (Hammond, 1974).

In essence, to make fruits available all year round, the excess produce have to be preserved, either through storage or processing into other more desirable forms. Food preservation includes all processes which enable food to be kept for long periods without the active growth of food spoilage or poisoning organisms or changes due to other factors (Ndungi, 1982). Fruit preservation is a very economical practice, knowledge of which should be made available to fruit producers and traders, most of whom are women.

It is against this background that the Women-In Agriculture (WIA) component of the Akwa Ibom Agricultural Development Programme (AKADEP) was established in 1989, to, among other functions; educate women on the processing and storage of different fruits at peak production season. The purpose of this paper therefore, is to enlighten the public, especially fruit producers, marketers and the female gender, on the different means, methods and procedures of pre-

2. THE WOMEN IN AGRICULTURE COMPONENT OF THE AKADEP

The women In Agriculture (WIA) component, is a sub-programme of the extension programme of the AKADEP which came into existence in 1989, to coincide with the commencement of independent operations of the AKADEP in 1998, after bifurcation with the Cross River Agricultural Development Programme (CRADEP). The functions of the WIA sub-programme include:

1. To develop the intellect of women in the use of cheap food products to supplement their diets e.g the use of soyabeans, milk and flour, which are good protein sources.
2. To educate women on different ways of improving their standard of living as well as that of their household by the processing and marketing of the agricultural products which they grow.
3. To educate women on the need to cultivate small vegetable gardens around their houses and;
4. To educate women on the processing and storage of different fruits at peak season.

3. MODE OF INFORMATION DISSEMINATION TO THE PUBLIC

The following are the different means by which the WIA sub-programme disseminates information to the public;

i Enlightenment Campaigns:

The WIA sub-programme, once in a while embarks on enlightenment campaigns through workshops and seminars, to sensitise the general public (including

farmers, marketers, processors and (especially) the female gender); on the necessity to preserve and/or process fruits, and on methods and procedures for fruit preservation and processing. To achieve this end WIA functionaries embark on trips to different earlier scheduled locations. During these campaigns, the participants are physically acquainted with the various equipment and techniques. They also physically participate in the demonstration techniques being taught them.

ii. **Information Dissemination by Extension Agents**

Extension agents may also be utilized to disseminate relevant information, to farmers in their respective cells. With this method, the field level extension agents are trained by specialists and officials of the WIA sub-programme, during the normal fortnightly training (FNT) programmes. The agents ask questions during these training sessions and get clarifications on grey areas, before they embark on dissemination of relevant information to their clientele.

iii. **Participation In Radio Programmes**

The WIA functionaries cover great lengths to liaise with authorities of the different electronic media (AKBC and NTA) in the state, to broadcast programmes on fruits preservation and processing. Information dissemination takes place mainly during the broadcast of women-oriented programmes, where the producers of such programmes are encouraged to invite experts from the WIA sub-programme, to enlighten viewers on new trends in fruit preservation and processing.

iv. **Formation Of Women into Cooperative Groups:**

The WIA sub-programme of the AKADEP has a man

date to encourage rural women to form cooperative societies, so that these women may easily adopt disseminated practices. The rationale for forming women into cooperatives is to enable them take advantage of economies of scale. For example, if they come together to contribute money, they can buy some of the equipment needed for the processing and preservation practices, rather than trying to buy them individually.

4. **METHODS OF PRESERVING AND PROCESSING FRUITS**

The WIA sub-programme disseminates information on many methods of fruits preservation and processing to the public, at large. Some of these methods include: dehydration, heat treatment, canning, chilling and freezing. Other methods include pickling, chemical methods, Jam making using sugar, and bottling. These methods and procedures are discussed below:

a. **DEHYDRATION:**

Microbes grow and multiply in the presence of moisture. By drying, water is removed from these fruits and the microbes are unable to grow, thereby preventing decomposition. Using modern methods, drying may be effected at temperatures high enough to destroy enzymes. However, some of the vitamins may be retained by this method.

b. **Heat Treatment:**

Sufficient heat must be applied to destroy microbes, without cooking the fruit to be preserved. Heating is a convenient method of preserving fruits, especially through tinning and boiling.

c. **Canning:**

This may not be a practical method for most homes as it requires an expensive can sealing machine and cans which

are normally used only once. Canned fruits will keep for long periods if cans are not opened and they can be stored easily.

d. **Chilling and Freezing:**

Microbial growth is slowed when food is cooled. Fruits kept in a domestic refrigerator at 0°C may keep for several days. Freezing keeps more of the appearance, taste and food value than any other method of preservation. Most fruits (except bananas) may be frozen.

e. **Chemical Methods:**

Most of the substances used for chemical preservation are not usually thought of as dangerous chemicals, because they are edible. These include salt, sugar, vinegar and sulphur dioxide. Preservatives may be added to fruit to prevent further attack by microbes. Sulphur dioxide may be used in fruit juices, vinegar and salt in pickles and sugar in jams.

f. **Bottling:**

Successful bottling depends on good quality fruits, accurate heat treatment and secure vacuum sealing of the bottles. The seal is made by fitting a rubber ring under the bottle cover, which is then screwed or clipped tight while still very hot. As the contents of the bottle cool, they shrink and as no air can enter, a partial vacuum is produced. All fruits for bottling, except goose berries, should be fully ripe so as to produce the best possible flavour and colour. The fruits should be quite firm however, as the necessary heat treatment will reduce over-ripe fruits to pulp.

g. **Jam Making Using Sugar:**

Microbes cannot grow in a strong sugar syrup because the sugar holds the water in such a way that makes it unavailable to microbes. In preparing jam, the fruit is boiled; to cook, and to extract the pectin (a natural gum-like substance found in fruits in varying degrees). Sugar is then added and temperature raised until setting point is reached. A successful

jam will be well set, look attractive, have a good flavour, and will not ferment on keeping. The fruits used in jam should be fresh and firm and should remain in good condition for well over a year.

5. **RECOMMENDATIONS: AND CONCLUSION**

From all indications, the WIA sub-programme of the AKADEP is well aware of its mandate and has been trying to achieve its set objectives. With regards to its mandate on fruit processing and preservation, the WIA sub-programme has been hampered by some difficulties. These include: the poor educational level of its clientele (especially women), their low income levels, their apathetic interest in fruits, the prevalence of particular fruits in their vicinity, and other characteristics, as imbedded in these fruits. Other important constraints include: lack of transportation and communication facilities and the low morale of the extension agents.

Efforts to readdress this dismal trend would have to focus more on the formation of viable local groups and a re-orientation of the clientele's perception, in favour of fruits, as indispensable parts of the human diet. In this wise, the public would have to be deliberately encouraged to cultivate fruit plots. The yearly tree planting campaign activities, is a veritable forum for this endeavour. It may also be necessary to study indigenous fruits processing and preservation techniques, which may then be adapted to suit scientific requirements. The extension agents also must be well remunerated and possess all necessary equipment and other materials for demonstration purpose. Finally, increased funding will enable the WIA sub-programme to undertake more enlightenment campaigns (even on the electronic media) to span the length and breadth of the state. Increased funding would also enable the setting up of miniature model fruits processing cottage industry, where real life experience would be acquired by local groups for replication in their locality. In conclusion, fruits are essential parts of our diet and the WIA sub-programme of the AKADEP should be encouraged to ensure all year round availability.

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