

## **Research on Conservation Farming System and its Benefits in Zhangzhou Municipality-P.R.China.**

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### **Abstracts:**

#### **1 . Summary**

The conservation farming system project site of China has been established in Xiamei Town, Zhangzhou Municipality, Fujian Province since August, 1990. The purpose of establishing the project site is to practice the methods that introduced in conservation farming system training course and conservation project design training course from ASOCON. To set up the project site, a comprehensive planning team composed of the technical personnel of agronomy, forestry, horticulture and geography has made a integrated investigation and study to the project site, pointed out the present problems in agriculture production, suggested some appropriate measures of soil conservation and cultivation for planning in order to solve the existing problems. The guiding idea of the planning is to combine the measures of soil conservation and cultivation with that of agricultural production, to establish the prerequisite of conserving and long-time using water and soil resources in order to raise production and increase the earnings of the farmers. The principle of the planning is: overall planning, comprehensive harnessing, suiting measures to local conditions and striving for practical results. After 15 years practice, We would like to present the case of conservation farming system project in Xiamei Town . The feasibility and some of problems in the project will be also discussed in this

paper.

## 2.Introduction

With a total area of 75.5km<sup>2</sup>, Xiamei Town is located in the southeast part of Fujian province, Long 117°35' E, Lat 26° 06' N. This area is composed of 19 administrative villages with 4 small catchments. The unsuited usage of soil caused serious loss of water and erosion of soil. The area eroded in the total areas, of which, serious erosion is 1235 ha accounting to 43.2% of the total eroded areas, the medium 693 ha accounting to 24.2%, and the slighter 934 ha accounting to 32.6%. In view of the kinds of the land use, the forestland eroded was 1722 ha accounting to 63.66% of 2705 ha of the total land, agricultural land eroded was 1121 ha accounting to 97.43% of 1151 ha of the total agricultural land. The serious soil erosion caused the decline of soil fertility, the deterioration of the environment, which seriously threatens the production and the living of the people. The total area of the zone is 7551 ha of which 2705 ha is forestland, 1940 ha is cultivated land.

## 3.Methods & Materials

### 3.1. Experiment

On basis of practical techniques, the experiments were carried out with the difficult problem of techniques and theories encountered in the purpose of spreading in large areas. They are experiment of soil conservation, rotation and intercrop in the sloping cultivated area; comprehensive transforming experiment of eroded and low-yield Lychee orchard.; experiment on water storing, soil conservation and soil improving in the low yield Lychee orchard; using adjustment-dose of growing and experiment of flower conservation and fruit conservation; introducing Paspalum grass to prevent gully erosion and experiment of protecting ridge of terraced fields; comparative experiment of

cultivating techniques of bamboo in eroded field; experiment of bag—planting Jew's ear with sugarcane dregs; research on rules of wind erosion in cultivated land of coastal areas and its prevention measures.

### 3.2. Extention

It is proposed to establish demonstration areas of soil conservation and cultivating items in order to let farmers see the actual results. In the meantime, we coordinated with the local agricultural technical spreading station to set up training course for farmers, print various measures brochures and carry on propaganda for spreading among the farmers through films.

### 3.3 Monitoring and Evaluating

In order to analyze and summarize the benefits of soil conservation and cultivating item and the extention practice, we adopt the way of combination of on-spot supervision in medium area, tracing monitor in large area and investigation on specific problem, and to establish the field of files of various measures of project area and the data-information stocks, in order to evaluate the benefits on economy, ecosystem and society. Based on the feedback of the information of the supervision, the projects can be properly adjusted for more reasonable.

## 4.2. Results and discussions

According to investigation, farmers in the project site can be divided into three types. First, present day, the farmers who engaged in agricultural production as their main thing occupied 72% of total population. Their common case is lack of land so as to have surplus labour force and lack of food. Second, farmers who took fruit tree planting as their main thin, occupied about 8% of total population. They have more land but shortage of labour force and capital.

Third, those farmers who take aquaculture as their main thing, occupied 20% of total population. Their case is lack farmland but have higher income. Except these three types, a few farmers engage in commercial business .

To first type of farmers, their purpose of production is to get food and income to satisfy their need of life, also they should sold certain amount of food to the government to meet social need. The cash crops they planted is to get income for their life and production investment, also come cash crops can be planted to compensate the quantity of food that they should sold to government. After harvest, farmers can sold their crops to food department, or some business man come to village to purchase goods from them..The major crops planted in this area are: rice, sweet potato, peanut soybean, sugarcane.The minor crops are: sesame, corn, wheat, asparagus.The main power that farmers used for tillage is cattle while a part of farmers use machine. For harvest, they use machine and physical labour.Main cropping patterns are three crops rotation a year and two crops per year. They are: rice-rice-wheat for paddy field, peanut-sweet potato-fallow for upland. For planting sugarcane it is used one crop per year.The main management measure is through using improved seed and practice scientific farming and meticulous cultivation and proper timing of fertilizer application, weeding, control plant diseases and insects to reach the aim of high production. Generally, the production cost of rice per ha is 1,500 yuan RMB and 300 labour days.To control diseases and insects, the special control agency have been set up. They often forecast before diseases and insects happening and tell farmers the methods of control.

According to 15 years practice, we found that the methods of conservation farming system are practical and good, because they can meet farmers interests and needs and customs. These methods can continue for a long

time. Thus, as a part of their production activities, soil and water conservation is becoming farmers volunteer activities. But, in fact, some farmers have not realized it clearly, they may be not willing to accept these recommendations in the early period, it need some time for them to understand. So our conservation farming system practice is to establish several demonstrated site in each planning control area at first. From our demonstrated site, farmers will imitate some of our methods when they see the recommendation which is effective in practice. And it will expand the influence of conservation work and spur farmers realize the importance of soil and water conservation as soon as possible. On the other hand, through setting up demonstration site, we also can get informations and sum up experience to alter recommendations and make it more reasonable, and set up successful model. In the past 15 years, this method had been used and showed good effective.

In addition, one thing should be considered, that is production in our country is planed by government, so recommendation should suit government plan. For instance, government demanded that only food crop can be planted in the paddy field, we cannot ask farmers planting cash crop in this field. That means some of soil conservation measures should obey the unidified planning of government, only doing so can the development of agriculture production be guaranteed. As a planning of recommendation measures, it is necessary to divide farmers into different types, so as to make each recommendations suit them. Besides, in our country whole planning and layout of production generally is made based on administration area, so some measures are also needed unified to suie this layout.

Nowadays, the main problem in our project site is that animal husbandry have not been well developed. So the pasture can not be utilized and profit of planting pasture is very low, farmers are no interested in planting

pasture. Another problem is that the land will be adjusted in a short time, which causes farmers to worry about the management of long-term crops such as fruit trees, and this also has an influence on practicing some measures. So in the days to come, the development plan of animal husbandry will be added and some measures will be made out to solve the problems mentioned above.