

The Impact of Agriculture Extension Partnership Model on Rice Seed Farmers in Aceh Province

Type:

Research paper

Abstract:**Background**

The availability of locally superior seeds is an effort that is being pursued by the Indonesian government today by encouraging farmers to be seed producers (three thousand seed independent villages program). This effort is more oriented to empower the farmers and to apply the pattern of agricultural extension partnership by involving the government, universities, private and institutional level of farmers. This pattern further ensures the availability of locally superior seeds, making it cheaper and easily obtainable by farmers

Material and methods

This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through non parametric static with data measurement using Likert Scale.

Results

The result shows that the role of partner in farmer extension model to rice seed farmers in sequence are; (1) institutional role of farmer level, (2) role of government, (3) role of universities, and (4) role of private organization toward seed availability in Aceh, Indonesia. In general, the impact of agriculture extension partnership scheme is felt good by rice seed farmer in Aceh Province Indonesia.

Conclusions

In particular the impact of the application of farming partnership pattern to each of rice seed farmer in sequence are as follows; (1) increased production (2) improvement of cultivation skills, (3) availability of locally superior seeds is considered very good by rice seed farmer, (4) group strengthening and (5) marketing production that is in good category.

Keywords:

agricultural extension, partnership impact, rice seed farmer

The Impact of Agriculture Extension Partnership Model on Rice Seed Farmers in Aceh Province

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Abstract: The availability of locally superior seeds is an effort that is being pursued by the Indonesian government today by encouraging farmers to be seed producers (three thousand seed independent villages program). This effort is more oriented to empower the farmers and to apply the pattern of agricultural extension partnership by involving the government, universities, private and institutional level of farmers. This pattern further ensures the availability of locally superior seeds, making it cheaper and easily obtainable by farmers. The purpose of this study are; (1) to know the role of partners involved in farmer extension partnership model on seed farmer in Aceh Province, Indonesia, (2) to know and to analyze the impact of agriculture extension partnership model on the availability of seeds in Aceh province, Indonesia. This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through non parametric static with data measurement using Likert Scale. The results show that the role of partner in farmer extension model to rice seed farmers in sequence are; (1) institutional role of farmer

level, (2) role of government, (3) role of universities, and (4) role of private organization toward seed availability in Aceh, Indonesia. In general, the impact of agriculture extension partnership scheme is felt good by rice seed farmer in Aceh Province Indonesia. In particular the impact of the application of farming partnership pattern to each of rice seed farmer in sequence are as follows; (1) increased production (2) improvement of cultivation skills, (3) availability of locally superior seeds is considered very good by rice seed farmer, (4) group strengthening and (5) marketing production that is in good category.

Keywords: agricultural extension, partnership impact, rice seed farmer

1. Introduction

The agricultural sector contributes substantially to economic development, and can even trigger economic growth in Indonesia. In the future, the agricultural development is expected to contribute more in order to reduce the gap between the rich and the poor, expand employment opportunities, and able to take advantage of economic opportunities that occur as the impact of globalization and liberalization of the world economy.

Essentially, farmers are the main actors of agricultural development. Thus the success of agricultural development is more determined by the role of farmers themselves which in fact can not be separated from the guidance and assistance of the government and various institutions.

One of the ways that the governments and other institutions should do in empowering farmers is to develop agricultural extension. As stated by Elliot (2014), extension has

an important role in ensuring that agriculture develops and assume its rightful position in the arena of development at small scale and upcoming commercial farmers.

To achieve that goal, the forms of agricultural extension activities should involve implementing the training, strengthening farmer groups and planning and supervising extension programs. Burton and Mohamed (2002) stated that the main task of a public extension system should be human resource development that can equip medium and small-scale farmers to solve their own problems and respond to new opportunities.

Besides farmers, according to Arthur (1966), one of the main requirements in agricultural development is the ever-changing technology. Tesfamichael et al. (2017) assert that “adoption of improved agricultural technologies by smallholders is considered as the main pathway for breaking poverty trap”. It is also support that innovation plays an important role in agricultural development. Diffusion and adoption of innovation in a farming community is strongly influenced by the characteristics of the innovation itself. Everett (1983) argues that there are several characteristics of an innovation, namely: (1) relative advantage, (2) alignment, (3) complexity, (4) can be tried, and (5) can be observed.

Another important aspect that should be fulfilled in agricultural development is professional extension. As stated by Elliot (2014), professionalism also affect agricultural extension in service delivery by creating demotivated cadres in agriculture. Catherine et al. (2017) also believe that communication is one of the most important aspects of effective extension delivery.

To achieve that goal, it is important to prepare materials, methods and media used in the implementation of agricultural extension. The attainment of the ultimate goal of

extension is largely determined by the material, method and accuracy of media usage by extension workers (Sapar et al., 2012). Isaac et al. (2013) also argues that content and delivery methods in agricultural extension should be carefully selected and varied so that the desired results and programme objectives are achieved.

In addition, extension program face a lot of problems. Kurnia et al. (2010) for instance stated that the role of agricultural extension can only be felt by the farmer group members. Most time was spent for administrative activities compared with extension activities, as well as the burden of the targeted area reached 3-6 villages for each extension worker.

This condition requires an agricultural extension partnership system with various parties including universities, private organization, agricultural institutions at the farmer level. It aims to ease the burden and to connect between innovation producers and those who will distribute innovation to farmers and the certainty of the production market (Zulvera, et al., 2016).

Srinivasulu et al. (2016) argues that there is a need for government and development partners to promote and boost public-private partnerships that will ensure better access to inputs for production of certified seed, provide better access to extension services for smallholders, and increase revenues from certified seed production from farmer-led seed enterprises.

According to Gana and Stephen (2001); Burton and Mohamed (2002), partnerships will increase the effectiveness of empowerment to the community. The key to successful partnerships is complementary business. To achieve this complementarity there must be mutual understanding and respect for the strengths and weaknesses of each.

Based on this background, this study aims; (1) to know the role of partners (government, university, private, and farmer institutions) in agricultural extension, and (2) to know and analyzing the impact of the implementation of extension partnership model to rice farmer breeders in Aceh Province, Indonesia.

2. Material and methods

This research was conducted in Aceh Utara district of Aceh Province. The population of this research includes member of rice farmer group Gapoktan 'Sapue Pakat' who get farming extension partnership scheme program which involves the government, university (IPB and Unsyiah), private organization and farmer institution. The total population to be sampled in this study is 128 farmers.

The scope of the study is limited only to the role of partners (government, university, private organization and farmer institutions) and the impact of agricultural extension partnership models on rice seed farmers. Research object is member of rice farmer group Gapoktan 'Sapue Pakat' that give assessment to role of partnership in implementing agricultural extension for rice seed farmers.

To measure and analyze the role of partners (government, university, private organization and farmer institution) on seed farmers, the researcher calculate the average scoring through the role of each party include (1) government parties, (2) universities, 3) private organization and (4) institute at farmer level which further interpreted descriptive statistics analysis result.

Impact analysis of the application of farmers extension partnership pattern to seed farmers include indicator (1) improvement of farmer cultivation skills (2) strengthening farmer groups (3) increased production, (4) availability of locally superior seeds and (5)

marketing of products using score Likert that interpreted in the discussion. The questions were served in closed form by using the 5-point Likert Scale (namely strongly agree, agree, not sure, disagree and strongly disagree) in order to have affective responses.

3. Results and discussions

Implementation of partnership pattern for rice seed farmers in Aceh Province involves government, university, private organization and farmer institutions that each play a role in the success of the partnership pattern.

3.1 The role of government in partnership agricultural extension

The role of government in agricultural extension partnerships includes; (1) supporting food sovereignty programs, (2) provision of production facilities and (3) increased production. The distribution of respondents' answers about the role of government in agricultural extension partnership can be seen in the Table 1.

Farmers felt that the role of local government is significant in providing production facilities such as purple label seeds of IPB 3S varieties, organic fertilizers and unorganic fertilizers (Urea, SP 36 and Ponskha).

Provision of production facilities from the local government through Food Security and Extension Services (BKPP) of North Aceh Regency is felt significant in increasing production yields. It can be seen that in the first seeding season, the seedlings get 8.4 tons per hectare and the peasants who are not involved in the partnership program only produce 6.7 tons per hectare. This condition indicates that the role of this activity supports the food security and sovereignty program which was expected by the local

government as reflected in the Strategic Planning of North Aceh Regency and the Strategic Planning of BKPP in North Aceh Regency.

3.2 The role of universities in partnership agricultural extension

The role of universities in agricultural extension partnerships includes; (1) the implementation of the resulting innovation, (2) facilitation of technology transfer and (3) the dissemination of innovation results. The distribution of respondents' answers about the role of universities in partnership of agricultural extension can be seen in the table 2.

Extension partnership programs recognized by farmers and extension workers have assisted in the spread of superior seed innovations of IPB 3S varieties produced by plant breeding teams from the Bogor Agricultural Institute (IPB) and Optimum Production Technology Package (IPB-Prima). Efforts to ensure the application of the technology package is conducted by Agriculture Faculty of Syiah Kuala University and Agriculture Faculty of Malikussaleh University on the extension partnership program and agricultural fielding program. It involved six the last year bachelor and doctoral students who helped the process of innovation, extension and dissemination of innovation. In general, farmers at the majority of research apply a packet of cultivation technologies delivered by universities including the seeding process with the quickly seeds incubation period.

On the application of legowo row planting pattern, it is still found farmers who have not completely implemented row legowo pattern. Some reasons for applying row legowo (1) are more difficult in the process of planting, (2) the farmer assumes that there is a vacant part of the field that is not utilized for planting, (3) need a tool (rope)

with different sizes and difficult to find proficient labor of planting process with legowo
jajar system.

Implementation of irrigation and fertilization system does not face many obstacles by
introducing intermittent techniques and water draining 10 Days before harvest.
Likewise, in the case of fertilization only time and volume of giving that not all seed
farmer apply correctly. There is one kind of fertilizer recommended by Optimum
Production Technology that is 1 liter / hectare silica fertilizer that is sprayed at age 14
and 30 HST (Day Ready Planting) because farmer felt difficult to find it at agriculture
shop in their environment.

University and farmers are also actively monitor to anticipate various diseases and pest
attacks. Only snail attack and caterpillar attack perceived by farmers planting I and II.
However, because it is quickly detected, the preventive and pest control efforts can be
done well based on the information of the extension staff and escort on the
University who always stay with the farmers in the research location. Implementation of
harvest was done after 90% of paddy grain dries.

3.3 Role of private partnership in agricultural extension

The role of private organization in agricultural extension can be seen in the table
3. Cooperation partnerships with private perceived benefits by farmers. It is in line
Burton and Mohamed (2002) who writes “private sector firms and nongovernmental
organizations (NGOs) have become important alternatives to public extension in
providing technical inputs, information and training, and organizational support services
to farmers and rural households”. Emmanuel et al. (2015) also report that farmer groups
can be an important institution for the transformation of smallholder farming, increase
productivity and incomes thereby reducing poverty.

The farmers perceived benefits because the production they earned get assurance of the parties that will accommodate and also get a better price. This is in accordance with the agreement between the farmer groups, with the private sector when following the Optimum Production technology package (IPB Prima) offered by the colleges that will conduct training and assistance during the partnership activities take place. Based on the observations of researchers before the hatchery program of 3B IPB varieties is implemented, farmers were promised higher prices Rp. 500/Kg compared to the prevailing market price at the time of harvest.

This partnership pattern is also benefited by farmers and the entrepreneur of seeds because of the availability of seeds from the breeders who have received training from the university and supervision from the government. Farmers also indirectly enjoy the share of marketing price of seeds managed by farmer groups whose profits can be used to increase the capital of Farmer Group 'Gapoktan Sapue Pakat' in North Aceh Regency.

3.4 Role of farmer institution in agricultural extension partnership

The role of farmer institutions in agricultural extension partnership includes; (1) the need for innovation to increase production, (2) implement the technology package, (3) the happening of input efficiency and the increase of production result. Distribution of respondents' answers about the role of farmer institutions in agricultural extension partnership can be seen in the table 4.

Based on the answers from the majority seed farmers, they still expect various innovations from institutional agriculture to increase production. Some of the innovations offered in agricultural extension partnership schemes involving local

government, university, private parties, and farmer institutions are perceived to be beneficial to farmers, both in terms of cultivation techniques that can reduce production costs and increase production and market certainty of production.

Increased efficiency starting from the use of seeds with the amount of 15 Kg able to meet the needs of seeds for 1 hectare which is based on the recognition of farmers before the introduction of cultivation technology IPB 3S for 1 (one) hectare require 30-35 Kg. Likewise in the use of Urea fertilizer which usually gives farmers up to 400 Kg but with Optimum production technology package (IPB-Prima) only required 150 up to 200 Kg / hectare/MT. This illustrates the efficiency of production usage and based on observations in the field of rice production is also increasing for farmers applying technology packages offered by partners.

The Impactpattern partnership extensionon seed farmer can be seen on Table 5. It shows that the overall impact of applying farming extension partnership schemes to good effect for rice seed farmer in Aceh Province. Each indicator of the impact of the partnership pattern is instrumental in increasing the production. Before the extension partnership program, the yield of rice production averaged 5.8 Ton / hectare. After the implementation of partnership pattern and technology package there is a significant increase that is 7.5 Ton/ hectare. It is in line with Gana and Stephen (2001) who found that When GO, NGO or PO agencies engage in partnerships, their effectiveness is generally increased.

In addition, farmers also feel the impact of increasing skill ranging from land processing, seed seeding, cropping patterns, fertilization, pest and disease control, good harvesting and post harvest management activities to produce superior seeds. Implementation of agricultural extension partnership system is also felt positive impacts

by the farmers on the availability of certified seedlings that are easy to get and can be reached by farmers.

The pattern of agricultural extension partnership involving government, university, private and farmer institutions is not only conducting the cultivation innovation transfer process but also the strengthening the farmer group through entrepreneurship training activities and farmer groups management. This is felt by seed farmers of Sapue Pakat group members who become respondents in this study. The last level of agricultural extension partnership program impacts the existence of parties that accommodate the results of production in this case private company. This findings support Tesfamicheal et al.(2017) who found positive and significant effects of extension access and cooperative membership on technology adoption and household welfare.

Unfortunately, there are some agreements that the partner has not been able to be realized well, for example, the price of rice harvesting agreement processed into superior seeds. However, some farmers convey with the existence of partnership can at least answer the constraints of market availability and price certainty of rice produced by farmers.

4. Conclusion

The role of partner (government, university, private organization and institutional at farmer level) in farmer extension model to rice seed farmer is significant. In sequence, based on the level, the role of the partners in the implementation of the partnership extension pattern is as follows (1) institutional role of farmer level, (2) role of government (3) role of universities, and (4) role of private party

In general, the impact of agriculture extension partnership scheme that is perceived by rice farmer in Aceh Province in sequence is as follows; (1) increased production and (2) improvement of cultivation skills, (3) availability of locally superior seeds is considered very good by farmers, while (4) group strengthening and (5) marketing of production are in good category.

It is imperative that the partners involved in the agricultural extension farming partnership model to empower the farmer to build commitments to carry out their respective duties and functions and to communicate well to support the success of the program. It is hoped that the government will promote this first extension partnership model and apply it to other locations in order to support the achievement of food security and sovereignty starting from the availability of locally superior seeds throughout Indonesia.

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Table 1

| The Role of Government | | | | Std. | | | |
|-------------------------------------|-----|------|------|------|-----------|--|--|
| | N | Min. | Max. | Mean | Deviation | | |
| Supporting Food Sovereignty Program | 128 | 1 | 5 | 3.52 | 1.14 | | |
| Provision of means of production | 128 | 1 | 5 | 3.59 | 1.14 | | |
| Increased Production | 128 | 1 | 5 | 3.53 | 1.16 | | |
| Valid N (listwise) | 128 | | | 3.55 | 1.15 | | |

Table 1. Distribution of farmers' answers on the role of government in partnership agricultural extension

Table 2

| The Role of Higher Education | N | Min. | Max | Mean | Std. Deviation |
|-------------------------------------|-----|------|-----|------|----------------|
| Application of Innovation generated | 128 | 1 | 5 | 3.52 | 1.02 |
| Technology Transfer Assistance | 128 | 1 | 5 | 3.45 | 0.98 |
| Dissemination of Innovation Results | 128 | 1 | 5 | 3.60 | 0.98 |
| Valid N (listwise) | 128 | | | 3,52 | |

Table 2. Distribution of farmers' answers on the role of universities in agricultural extension partnership

Table 3

| Role of Private Sector / Entrepreneur | N | Min. | Max | Mean | Std. Deviation |
|---|-----|------|-----|------|-------------------|
| Availability of Superior Seeds for Marketed | 128 | 1 | 5 | 3.50 | 1.06 |
| Availability and certainty of production price | 128 | 1 | 5 | 3.65 | 1.04 |
| Share Price Marketing Seeds | 128 | 1 | 5 | 3.49 | 1.05 |
| Valid N (listwise) | 128 | | | 3,52 | |

Table 3. Distribution of farmers' answer on the role of entrepreneurs/private partnership in agricultural extension

Table 4

| Role of Farmer Institution | N | Min. | Max | Mean | Std. Deviation |
|--|-----|------|-----|------|-------------------|
| Innovation need for increased production | 128 | 2 | 5 | 3.62 | 0.96 |
| Applying the Technology Package | 128 | 2 | 5 | 3.57 | 1.00 |
| The occurrence of input efficiency and increased production yield | 128 | 1 | 5 | 3.57 | 1.03 |
| Valid N (listwise) | 128 | | | 3,59 | |

Table 4. Distribution of farmers' answers on the role of farmer institution in agricultural extension partnership

Table 5

| No | Impact Pattern Partnership Extension | Index (%) | Interpretation |
|---------|---|-----------|----------------|
| 1 | Improvement of cultivation skills | 81.14 | Very good |
| 2 | Strengthening farmer groups | 73.24 | Good |
| 3 | Increased production | 83.37 | Very good |
| 4 | Availability of locally superior seeds | 82.26 | Very good |
| 5 | Marketing of produce | 67.28 | Good |
| Average | | 77.46 | Good |

Table 5. Value of impact index of partnership pattern on seed farmer

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