

# Institutional System and Rice Seed Group Problems in North Sumatra Province

Muhammad Asa'ad, Tri Martial, Surya Dharma and Desi Novita  
*Agribusiness Department, Faculty of Agriculture, UISU, Medan, Indonesia*

**Keywords:** Institutional, Seeds, Rice Fields, Breeding Groups.

**Abstract:** This study aims to identify the institutional forms of breeders of paddy rice and identify problems that occur in rice seed breeding groups in North Sumatra. This study uses in-depth interview method with key respondents. Besides, questionnaires and observations were made in the field. The results showed that the form of breeding institutions consist of two independent and non-independent breeders. All breeder members only carry out seed production activities on cultivation resistance, while post-harvest activities, certification and marketing are carried out by the head of the farmer group or the partner company. Problems faced by breeders include lack of access to irrigation sources, capital sources, markets, lack of knowledge and skills in post-harvest and certification and high dependence on one party.

## 1 INTRODUCTION

The Agriculture Sector, especially the food crops sub-sector is one of the fields that has great potential and is important to be developed in North Sumatra Province. Therefore, agricultural development policies, especially sub-sectors of the food crops are directed to ensure food security to support national security. One of the directions of agricultural development policy is to increase production capacity through increasing productivity and expanding agricultural areas.

Increased production capacity of food crops, especially paddy fields is needed to support food security both at the household and national level. One of the factors of production that has an important role in increasing rice production is the use of certified superior seeds. Seeds are the main factor in achieving high yields (Nugraha and Subandi, 2002). This superior seed is one of the factors that determines the high and low production due to the use of certified superior seeds increases the production of 15% compared to the use of unqualified seeds (Ministry of Agriculture, 2012). According to Jayanti (2011), the behavior of farmers in the use of superior seeds has several advantages, among others, improving the quality of rice, overcoming the obstacles of pest disruption and increasing farmers' income.

Whatever the source, farmers are generally very aware of the need to sow the seeds of the highest quality available. But that does not mean they prefer "official seeds" rather than those from local sources. Farmers' priorities related to quality are more fulfilled from local sources. The genetic quality of the varieties circulated may not be adapted to the conditions of the local agricultural environment as well as the special preferences of local consumers in the area. In fact, it could be the analytical, physiological and sanitary nature of the "official seeds" inferior to local seeds. Long distribution and poor channel distribution design can cause damage to seeds that are initially of high quality. Other considerations are supplier closeness, supply time (just before the planting season), supply of reliability (quality and guarantee of timeliness for the next season) and seed prices (related to yield and production prices) (Louwaars and Marrewijk, 1992). Quality seeds are the result of all efforts to overcome things that can negatively affect when the seeds are formed until they can be replanted (Sadjad, 1993).

Propagation of superior and certified rice seeds is carried out by the government together with the private sector and farmers. Farmers can do certified seed propagation through breeding business groups. Most business groups of seed breeders collaborate with the private sector or food sector BUMN.

To ensure the continuity of the availability of certified superior rice seeds, various methods must

be carried out. One of them is by developing and improving the ability of seed institutions from upstream to downstream levels, guiding, fostering, and supervising the procurement of superior seeds by breeding business groups (Sutami, 2016). The role of rice seed institutions is seen as a very important thing in the process of accelerating agricultural development. Seed institutional support is focused on the regulatory process, strengthening the understanding and knowledge of the same farmers, as well as ensuring the sustainability of seed production that is of the right quality, right amount, on time, right place, price and right type. Institutional is a way to develop production capacity (Ciat, 2003). Breeding institutions play a role in various aspects including quality assurance, variety development, market strengthening and strengthening of production and post-harvest systems (Gauchan, Magar, and Gautam, 2016).

In connection with that, to obtain a description of the breeding business group in North Sumatra Province, the formulation of the problem in this study is:

1. What are the institutional forms of rice seed breeders in North Sumatra Province?
2. What problems are faced by the institutions of rice seed breeders in North Sumatra Province?

The main objectives of this research are to:

1. Analyze the institutional forms of rice seed breeders in North Sumatra Province
2. Analyze what problems faced by the rice seed breeding institutions in North Sumatra Province.

## 2 METHODOLOGY

The selection of research locations was purposively determined based on the criteria of the level of productivity of paddy produced by the district on the productivity of rice in North Sumatra Province and the potential area of harvested land. Research locations include Simalungun Regency, Serdang Bedagai, Langkat, Deli Serdang, Mandailing Natal and South Tapanuli Regency. The sampling technique used is purposive sampling technique namely the determination of samples with certain considerations to determine who has the right to be made an expert (Sugiyono, 2010). Each regency is assigned 2 breeders/group breeders with a stretch area of each group of 10 Ha.

The method used in data collection is by in-depth interviews with experts or related parties,

questionnaires, observation, and literature studies. The type of data used is primary data and secondary data. Primary data in this study were obtained through interviews, questionnaires and observations with experts or related parties who understand about seed institutions in North Sumatra Province. The related parties include: 1) Breeding Business Group, 2) Agricultural Extension, 3) Plant Seed Supervisor, and 4) Agriculture Service in each district. Meanwhile secondary data in this study were obtained from the Seed Supervision and Certification Office (BPSB) of North Sumatra Province, various literatures such as books, scientific articles, previous researches, and regulatory documents and government policies obtained through internet search. The data obtained were then analyzed using qualitative descriptive analysis to determine the institutional forms of breeders and to know the problems that occur in the breeder group.

## 3 RESULT AND DISCUSSION

### 3.1 Institutional Forms of Rice Seed Breeders

Institutional forms of rice seed breeders in North Sumatra Province are in the form of individual businesses or legal entities. Individual businesses are breeder farmers or breeder farmer groups that individually or in groups produce rice seeds based on cooperation contracts with seed breeding companies. Farmers or farmer groups conduct activities. Legally incorporated seed producers are institutions or institutions that are organized to produce seeds for commercialization. This legal entity can be a government institution/BUMN or private/breeding group.

Based on its working mechanism, seed producers are grouped into:

- Independent Seed Producers are seed producers who market their own produced seeds.
- Seed producers of Non-Independent Business Partners are seed producers who sell seeds produced to their business partners.

There are 141 rice seed breeders in North Sumatra in 2017 with details of breeding forms as follows:

Table 1: Institutional Forms of Rice Seed Producers in North Sumatra 2017.

Institutional Form of Seed Producers	Total
1. Department of Agriculture	1
2. PT. Sang Hyang Seri (Persero)	1
3. PT. Pertani (Persero) UPB Binjai	1
4. Seed Hall	1
5. UPBS	3
6. UPT / UPTD	7
7. Breeding Groups	21
8. Farmer Groups	79
9. Limited Liability Company (PT)	2
10. Limited Partnership (CV)	7
11. Sole Proprietorship (UD)	8
12. Combined Farmer Groups (GAPOKTAN)	6
13. Cooperative	2
14. Foundation/Others	2

Source: BPSB North Sumatra Province (2018)

Table 2: Character System of Production and Marketing Based on Institutional Forms of Breeders.

Institutional Forms	Production	Marketing
1. Department of Agriculture	Independent	Independent
2. PT. Sang Hyang Seri (Persero)	Independent & Partner	Independent
3. PT. Pertani (Persero) UPB Binjai	Independent & Partner	Independent
4. Seed Hall	Independent & Partner	Independent
5. UPBS	Independent	Independent
6. UPT/UPTD	Independent	Independent
7. Breeding Groups	Independent	Independent & Partner
8. Farmer Groups	Independent & Partner	Independent
9. Limited Liability Company (PT)	Independent & Partner	Independent
10. Limited Partnership (CV)	Independent	Independent
11. Sole Proprietorship (UD)	Independent	Independent & Partner
12. Combined Farmer Groups (GAPOKTAN)	Independent	Independent & Partner
13. Cooperative	Independent	Independent & Partner
14. Foundation /Others	Independent	Independent

Source: Primary Data (Processed)

Based on Table 1 above, most (56.02%) of seed producers/seed breeders are in the form of Farmer Groups, and 14.89% in the form of Breeder Groups. The production and marketing system in each form of institutional breeder blends independently and/or partnerly. An independent production and marketing system means that breeding producers/institutions carry out their own production/marketing activities without cooperating/partnering with other parties.

Meanwhile, a system of production and marketing that is partnered/non-independent means that the production and marketing systems of breeding producers/institutions collaborate with other parties.

Based on the results of the study, there are two forms of marketing institutions that occur. These institutional forms can be seen in Figure 1 and 2 below:

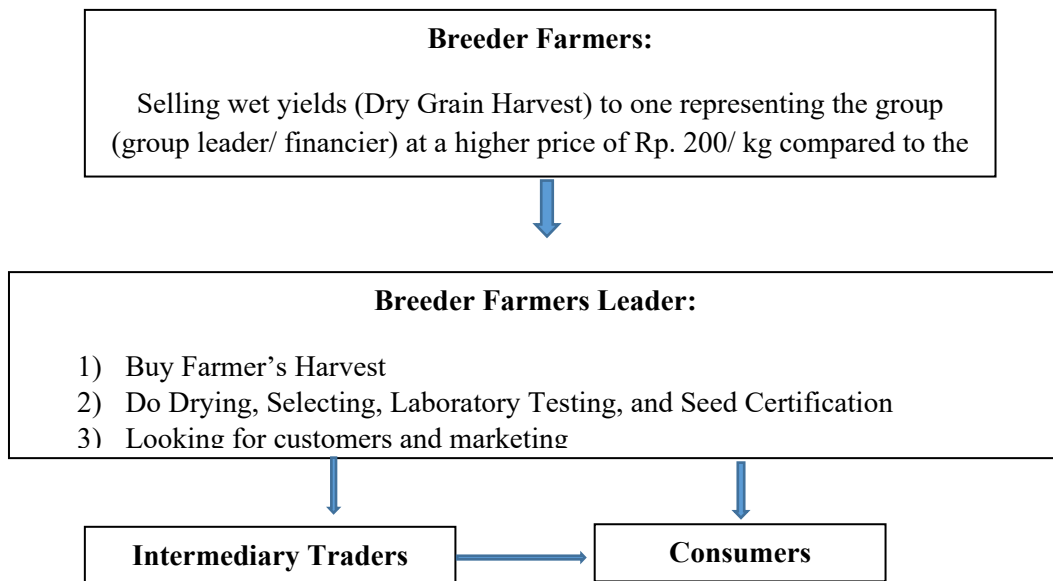


Figure 1: Marketing Institution in Independent Breeder Farmers.

Based on the figures above, it can be seen that all group members only carry out seed production until the grain stage is sold to the head of the farmer group. Then the farmer group leader conducts post-harvest processes (drying and sorting) and certification. From this, group members only carry out production activities at the cultivation stage only. This is due to the need for farmers to fund immediately after harvest and the unavailability of post-harvest infrastructure.

Strengthening the production and marketing system of quality rice seeds for increased access and availability at the farm level will require the development of efficient production and marketing mechanisms including entrepreneurial skills among seed actors. This can be done by: (1) improving the

flow of information on domestic variety quality assurance in the market; (2) Improving the right relationship of the development of varieties and the chain of seed propagation with marketing to reduce incompatibility in demand and supply; (3) Strengthening the market and seed infrastructure facilities for production, processing, packaging, labeling and branding adequately (Gauchan, Magar, and Gautam, 2016).

Meanwhile, marketing institutions in non-independent seed growers, breeders have two different roles. First, the breeder sells to the company already in seed form, and there are also selling breeders to partners in the form of harvested dry grain. In more details, it is shown in Figure 2 below:

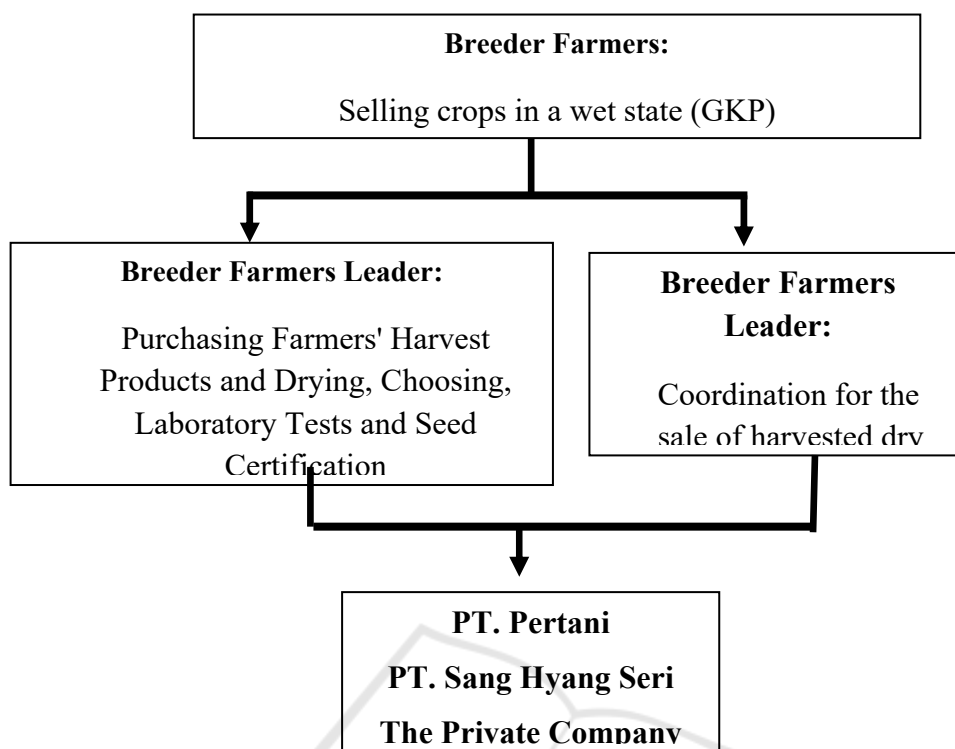


Figure 2: Marketing Institution in Non-Independent Breeder Farmers.

### 3.2 Problems Faced by Rice Seed Breeding Agencies in North Sumatra

Based on research conducted in six districts in North Sumatra, there are several problems faced by rice seed breeding institutions including:

1. Access to Irrigation.  
One important aspect in obtaining good production and quality of seeds is the availability of a good and easily accessible irrigation system. Irrigation problems still exist in North Sumatra province, because not all of the seed producers get irrigation, especially primary irrigation. There are also farmers who only have rainy rice fields as those found in Langkat District and Simalungun District.
2. Dependence on Members of High Breeder Groups.  
All members of the breeders group sell their products in the form of harvested dry grain. This condition is caused by breeders needing funds as soon as possible after harvesting and the unavailability of drying land.
3. Access to Marketing is Still Lacking.  
Marketing tends to be done only from person to person and is only done by the head of the farmer

group. Other group members are not involved in marketing the seeds produced.

4. Access to Capital Sources.  
Breeders always experience a shortage of farming capital so that breeders tend to come from group leaders or breeders selling harvested dry grain
5. Still lack of knowledge and ability of breeders in drying, sorting, laboratory testing and certification processes.

## 4 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research, institutional forms of breeders consist of independent and non-independent seed growers. All breeder members still have high dependence on the chairman of the group. Breeder members have a role in the cultivation process only, while the chairman of the breeder group acts as the party conducting drying, sorting, laboratory testing, seed certification and marketing. Problems that occur in institutional breeders include lack of access to sources of irrigation, lack of access to capital, lack of access to marketing, knowledge of

breeder members for post-harvest processes that are still lacking and high dependence on the chairman of the group.

Realizing that seed institutions are an important matter, it is expected that policies for strengthening and increasing the capacity of breeders in post-harvest and marketing processes so that breeders can be empowered independently. In addition, the government is expected to help facilitate breeders for sources of capital, provision of post-harvest facilities and infrastructure and the provision of sources of irrigation.

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