UPDATING THE RICE AND CORN SEEDING SYSTEM SUPPORTS THE AVAILABILITY OF QUALITY SEEDS

Lira Mailena, Maha Matahari Eddy Purnomo, Amalia Ulpah
Sri Suharyono, Fitria Yuliani, Agung Saras Sri Raharjo

INTRODUCTION

High yield plant seeds are a mainstay technology that has a major contribution in increasing productivity and production. Therefore, the plant seed system must be able to guarantee the availability of quality seeds in an adequate, sustainable manner and fulfill the six right principles, namely right variety, right quality, right quantity, right time, right location and right price. However, the problem that often occurs so far is that the number of certified seeds available in kiosks is still less than what farmers need. The latest data strengthens the current factual condition, the use of certified rice and corn seeds at the farmer level has only reached 64% and 75% respectively and is not yet in line with the RPJMN target of 80%. Examining the seed system, this problem arises as a result of the implementation of seed production and certification regulations which have not been fully implemented, the distribution of certified seeds has not been optimal and is uneven. Apart from that, from the perspective of farmers as seed users, they have a preference that the quality of certified seeds is not good and does not suit the needs of farmers. The location of seed producers which is focused on the island of Java means that distribution of seeds to other areas takes a long time which ultimately results in poor seed quality and expensive shipping costs.

These problems are the justification for carrying out PSEKP policy analysis activities entitled Renewing the Rice and Corn Seed System to support the availability of quality seeds. This policy analysis activity aims to develop policy recommendations related to updating the rice and corn seed system to ensure the availability of quality seeds to support increased production of rice and corn food crops. The specific objectives of this activity are to (i) compile a portrait of the current rice and corn seed system; (ii) develop a concept for updating the rice and corn seed system; and (iii) develop policy recommendations for rice and corn seed systems.

METHODOLOGY

Data and information collection was carried out through in-depth interviews and Focus Group Discussions (FGD) with selected policy makers enriched by direct observations in the field. FGDs were carried out at the central level and at the

provincial level from the Directorate of Seeds, Directorate General of Food Crops, BBPSI Padi, PT. SHS, private seed producers, and breeder farmers at the Mandiri Seed Village location. Meanwhile, statistical data was collected from the Directorate of Seeds, Directorate General of Food Crops, BBPSI Padi, and other agricultural agencies at the provincial and district/city levels.

Metode analisis yang digunakan adalah analisis kualititatif deskriptif sebagai hasil review dari berbagai diskusi dan publikasi serta penelitian atau evaluasi sebelumnya dan analisis akar penyebab masalah atau *Root Cause Analysis* (RCA). Dalam melakukan analisis akar penyebab masalah (RCA), digunakan *tools Five Whys Analysis* (FWA) dan *Cause and Effect Diagram* (CED). Selanjutnya dengan pendekatan *expert judgement*, rumusan alternatif kebijakan dapat dihasilkan.

The analytical method used is descriptive qualitative analysis as a result of a review of various discussions and publications as well as previous research or evaluations and root cause analysis of the problem or Root Cause Analysis (RCA). In carrying out root cause analysis (RCA), the Five Whys Analysis (FWA) and Cause and Effect Diagram (CED) tools are used. Furthermore, with an expert judgment approach, alternative policy formulations can be produced.

PORTRAIT OF RICE AND CORN SEED SYSTEM

The rice and corn seed system that plays a role in providing certified seeds for inbred rice and hybrid corn includes sub-systems for variety creation/assembly, production of source seeds and distributed seeds, seed distribution, certification and seed quality monitoring. The main problem in providing source seeds is related to the institutional transformation of research into BRIN which stops the creation of new varieties and stops the production of type seeds which must be under the supervision of breeders. The Ministry of Agriculture (Research Center for Rice), which changed its nomenclature to become the Center for Standard Testing of Rice Instruments, no longer has the function of creating varieties and producing seed sources. On the other hand, BRIN has not been able to fully function in carrying out research and multiplication of species seeds considering that the process of creating and releasing varieties takes a very long time, around 7-10 years. Meanwhile, the private sector is not interested in creating and producing species of seeds because it is not profitable. In contrast, research on hybrid corn varieties is currently predominantly carried out by large private companies, so changes in research institutions do not have much influence on the availability of hybrid corn seeds at the farmer level.

Benih jagung hibrida dominan disediakan oleh industri benih multi nasional (MNC) dan relatif kecil dari penangkar benih lokal sehingga pengembangan penangkar benih lokal untuk jagung hibrida menjadi tantangan besar. Pemerintah tetap perlu memperhatikan ketersediaan benih jagung mengingat permintaan yang semakin meningkat seiring dengan meningkatnya target produksi jagung. Namun benih jagung yang dihasilkan pemerintah kurang disukai petani karena kualitas tidak stabil dan produktivitas rendah.

Hybrid corn seeds are predominantly provided by multi-national seed industries (MNCs) and relatively few local seed breeders make the development of local seed breeders for hybrid corn a big challenge. The government still needs to pay attention to the availability of corn seeds considering that demand is increasing along with increasing corn production targets. However, corn seeds produced by the government are not popular with farmers because of unstable quality and low productivity.

The uneven availability of certified rice and corn seeds throughout Indonesia is one of the triggers for the low use of certified seeds. This condition is caused by the centralized location of seed producers in Java, which increases the costs of distributing seeds which causes the price of certified seeds to be high outside Java. Apart from that, the sale of illegal seeds both in kiosks and marketplaces is also a problem in seed distribution. This condition indicates that monitoring of seed quality in certification of seed production and distribution is still not optimal and the limited staff of Plant Seed Supervisors (PBT) and the BPSB budget, which has now become a regional UPT, are the main factors causing limited supervision of seed quality.

CONCEPT FOR RENEWING THE RICE AND CORN SEED SYSTEM

The urgent reform of the rice seed system is the institutional arrangement for assembling and providing seed sources for inbred rice which is predominantly used by farmers. Regarding the program to increase food crop production which is the full responsibility of the Ministry of Agriculture, it requires seeds as a source of plants, so providing source seeds is a priority task for the Ministry of Agriculture. Considering that the variety assembly sub-system cannot be separated from the source seed production chain because the production of type seeds is under the supervision of breeders, it is necessary to review the return of the function of discovering/assembling new inbred rice varieties to the Ministry of Agriculture in conditions where BRIN has not yet optimally carried out the function of assembling inbred rice varieties. The completeness of the resources and seed facilities owned by BBPSI Padi, including the seed center, needs to be explored by adding assembly functions to BBPSI Padi and collaborating with researchers/breeders of new superior seed varieties at BRIN so that the multiplication of inbred rice seed sources that have been released is carried out continuously. The consequence of this policy is that organizational restructuring is needed in the Ministry of Agriculture.

Optimizing the existence and function of seed centers in providing seed sources for rice and corn production needs to be supported by regional regulations and an adequate budget as well. Seed centers also have the potential to produce species of seeds under the supervision of breeders. This effort needs to be accelerated considering that food matters are a mandatory task of regional governments. Apart from that, increasing supervision of seed quality by BPSB requires increasing the number of Plant Seed Inspectors (PBT). The urgency of PBT's role in monitoring seed quality in certification and seed distribution should be socialized to local governments so that the placement of PBT is appropriate to its function and quantity. The update in seed circulation that must be carried out is the provision of in-situ seed distribution.

The revitalization of the Mandiri Seed Rice Village as an in situ seed provider is a priority to ensure the availability of seeds on time, quantity, variety/type, quality, place and price. Besides, re-education of farmers to return to using inbred rice seeds needs to be carried out followed by enforcement of supervision of production and distribution of seeds according to regulations.

Eventhough hybrid corn seed production in Indonesia is currently dominated by multinational private companies, the process of creating/releasing new hybrid corn varieties that are stable in quality and resistant to pests and diseases still needs to be carried out by the government. This can be realized through two mechanisms, namely (1) building collaboration between breeders under government research institutions with seed producer partners to produce parent and F1 seeds; and (2) the government introduces elders from outside and provides easy access for small-scale producers to develop them.

To overcome the limited availability of hybrid corn seeds in the eastern region of Indonesia, even though the potential for developing hybrid corn production is quite high in this region, the government program needs to focus on providing quality hybrid corn seeds in the eastern region through developing local corn seed producers. The creation of hybrid corn varieties in accordance with the agroecosystem conditions of eastern Indonesia and intensive seed production assistance needs to be a priority.

CONCLUSIONS

Transformation of research and development institutions to BRIN has had a significant impact on the rice seed system, especially on the process of creating and providing inbred rice seeds. The research/assembly function of new superior rice varieties at BRIN cannot yet run fully considering that the process of creating/releasing varieties takes a long time (around 7-10 years) even though the continued provision of superior inbred rice varieties that have high yield potential, are resistant to pests and diseases and are adaptive to climate change is still urgently needed. Even though the government's role in providing quality seeds is still very much needed, especially for rice, therefore exposure is needed regarding the role of the Ministry of Agriculture in assembling, producing and providing inbred rice seeds.

The portrait of the hybrid corn seed system is dominated by private companies (MNC) and the main problem currently occurring is related to the uneven availability of corn seeds and the location of quality corn seed production is still concentrated on the island of Java. The development of local corn seed producers requires regulations that accommodate the interests of local breeders, so as to fulfill the need for quality corn seeds in-situ. The supervisory function is very important to maintain the quality of seeds so that the role of BPSB as a seed supervision institution becomes very important and becomes an independent institution that is free from any intervention. Improving the quality of seeds in the future should be standardized as SNI seeds.

POLICY RECOMMENDATIONS

Changes in regulations and research institutions need to be followed up with a review of regulations to add functions and duties to the Ministry of Agriculture for producing species, basic, principal and spread seeds. Therefore, organizational restructuring is needed in the Ministry of Agriculture by revising Minister of Agriculture Regulation No. 19 of 2022 concerning the Organization and Work Procedures of the Ministry of Agriculture.

Another proposed policy recommendation is related to the preparation of regulations governing the cooperation mechanism of the Ministry of Agriculture with breeders or research agencies producing new inbred rice varieties for the propagation of type class source seeds. This regulation explains the mechanism for utilizing superior varieties of rice seeds resulting from research by research institutions (BRIN, universities, farmers/breeders) by the UPT Seed Sources of the Ministry of Agriculture to be multiplied into seed sources for rice plants.

Strengthening the capacity of the Seed Center and BPSB as regional UPTs that play an important role in food matters. High class (advanced) seed centers with capacity and a wide seed market have the potential to become Regional Public Service Agencies (BLUD), meanwhile seed centers that do not yet have capacity still receive funding support for seed production from the center. BPSB should be an independent supervisory institution directly under the governor or inspectorate or regional secretariat so that the supervisory function avoids interference from regional government interests.

Regulations for the independent development of seeds for the implementation of in situ seed provision through cooperation in providing seeds by breeder farmers with nearby private seed producers should be a priority. Strengthening breeder farmers in the independent seed program can be focused on increasing the breeder's ability to monitor the quality of rice seeds, establishing seed marketing cooperation with kiosks, farmer groups and other seed markets. Apart from that, increasing the use of certified seeds at the farmer level should be sought through outreach and education of farmers regarding the threat of pests and diseases and yield degradation when the same seeds are used repeatedly as well as the benefits of using certified seeds.

The government still needs to develop hybrid corn seed varieties either through improving existing seed technology or collaborating with breeders under government research institutions and universities as well as partnering with seed producers to produce parent and F1 seeds. Another mechanism is that the government can introduce elders from outside, and provide easy access for small producers to develop them. Furthermore, the provision of quality corn seeds in the eastern region, which is still very limited in quantity, needs to be achieved by developing local seed producers, through intensive assistance and training and building production cooperation between breeders and seed producers. The development location targets take into consideration the proximity and ease of access to the corn and animal feed processing

industries. Furthermore, the government needs to provide price certainty in seed production cooperation between breeders and seed producers so that it is mutually beneficial.