

## INCOME INCREASING ON FARMERS IN SOUTH SULAWESI: CASE STUDY OF RICE AND MAIZE FARMERS

Nursini Mahmud<sup>1</sup>, Amrullah Majjika<sup>2</sup>, Sultan Suhab<sup>1</sup>, Tawakkal Ramli<sup>3</sup>

<sup>1</sup>Department of Economis, Economic Faculty, Hasanuddin University  
Email: [nini\\_mahmud@yahoo.com](mailto:nini_mahmud@yahoo.com)  
[sultansuhab@yahoo.co.id](mailto:sultansuhab@yahoo.co.id)

<sup>2</sup> Department of Economics Social, Agriculture Faculty, Hasanuddin University  
Kampus Unhas Tamalanrea KM 10  
Email: [amrullaham@gmail.com](mailto:amrullaham@gmail.com)

<sup>3</sup>Department of Accountant, Polytechnic Negeri Ujung Pandang  
Email: [tawakkal\\_1@yahoo.co.id](mailto:tawakkal_1@yahoo.co.id)

Adress: Kampus Unhas Tamalanrea KM 10

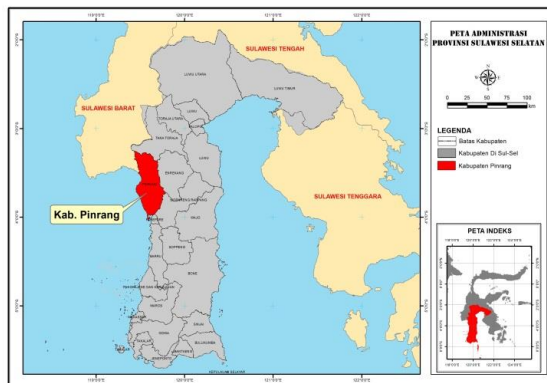
### Abstract.

This research aims: (i) to identify the problems faced by rice and maize farmers, (ii) to design a model for the development of food crops in South Sulawesi, and (iii) to know whether the model is effectively and appropriate implemented in the farmers. The data used are secondary and primary data which are analyzed using descriptive statistical analysis model. This research is conducted in Sidenreng Rappang, Pinrang, Bantaeng, and Jeneponto. The study found: (i) the problems face by rice and maize farmers includes high production costs, declining land productivity, price instability, low level of income, the lack of infrastructure (irrigation) and low farm management and farmer groups role; (ii) the appropriate model for food groups development is the one that focuses on strengthening farmer groups institution and improving sinergism among stakeholders, and (iii) the implementation of the model is effective and strong supported by the farmers. This is because the farmers can improve their capacity to solve their problems and to formulate program and activity planning which contributed to local/village planning mechanism.

*Keywords: Farmers, Planning, Food Crops, Capacity Building, Model*

### 1. Background

South Sulawesi is the largest center for the production of rice and maize in Sulawesi Island. This is shown by the contribution of rice production to the total production is 62.12 percent and maize production contribution is 49.73 percent of the total production of maize in Sulawesi Island. Although the contribution of the two commodities is high enough but it is still faced with a number of complex issues that also affect the level of productivity of rice and maize as a whole.



The research questions are (i) what are the problems faced by the farmers of rice and maize at four districts namely Sidenreng Rappang, Pinrang, Jeneponto and Bantaeng, (ii) How to model the development of food

crops rice and maize that contribute to income generation farmers, (iii) Does the model developed viable and effectively implemented at the farm level and whether it is beneficial to the improvement of planning mechanisms at the village level?

## 2. Objective of the Study

- 2.1. To identify the problems faced by rice and maize farmers
- 2.2. To design a model of the development of crops commodity
- 2.3. To know the effectiveness and feasibility of the model of food crops
- 2.4. To increase the capacity of the farmer in identifying needs and developing a plan of activities that will be discussed to farmer groups forum.
- 2.5. To Improve the mechanism of development planning at the government local /village level.
- 2.6. Expected to increased productivity and income of farmers, especially rice and corn farmers

## 3. Methodology

The study used a field survey approach to identify the problems faced by farmers and design a models of the development of food crops. The model is implemented to the farmer after disseminated to local governments to know the effectiveness and feasibility of the model. Participants of socialization of the model is local government and participants of training are farmer groups in Bantaeng (as maize production center) and Pinrang (as rice production center). The data used is primary data and it analyzed using descriptive analysis.

## 4. Results

### 4.1. Problems Identification

Problems faced by the farmers of rice and maize in four districts (Pinrang, Sidenreng Rappang, Jeneponto, and Bantaeng) are commonly found on every stage of the production process, namely (i) inputs, (ii) the production process, (iii) production, (iv) after harvest. The problem for rice farmers in Sidenreng Rappang and Pinrang are more dominated by the issue of availability of input, infrastructure and production processes. Production inputs include the availability of labor inputs, wages, availability of fertilizers, seeds, water and capital. While the problem of production processes include the use of land, machinery, cultivation, harvesting, transportation cost and marketing. List of problems faced by rice farmers in Sidenreng Rappang and Pinrang can be shown in Table 1.

Table 1  
List of Problems for Rice Farmers in Sidenreng Rappang  
and Pinrang, 2012.

NO	Problems
I.	<b>Inputs</b>
	Limited hired labor
	Harvesting labor is often not available
	Higher wage (800 thousand/hektare)
	Limited family labor
	Many TSP seeds not original

	Soil fertility began to decline
	The availability of hybrid varieties is still limited
	Availability of water is interrupted due to any damage and repair irrigation channels
	Limited Capital
	High fertilizer prices
<b>II.</b>	<b>Production process</b>
	Cultivated land is difficult because of the muddy rice fields
	The used of machine is hard
	The presence of rat attack when flooding and stem borer
	High fertilizer
	The use of fertilizers is determined by the land owner
	Officers only regulate water main sluice so often submerged paddy
	Farmers do not want to apply the Legowo cropping system because it is more costly
	Production is low because there are still many farmers used traditional system
	The role of the group began to decrease
	Late harvest time
<b>III</b>	Late harvest so the potential loss becomes large
	Lost production is still relatively high at harvest
	Paddy less clean because not using the machine harvest
	The price offered by traders are still low
	Transportation difficults during the rainy season

Source: Nursini, Amrullah, Sultan. 2012.

Problems faced by maize farmers in Jeneponto and Bantaeng (especially in Bontomanæ and Kaloling) includes four stages of production: (1) Problems associated with production inputs (amount of labor, capital, seeds/varieties, fertilizers, technology, land) , (2) problems associated with the production process such as how planting, processing methods, mean sweeding, fertilization method, spraying pests, (3) issues related to output, post-harvest and marketing, and (4) institutional problems of farmers including farmer groups/Association of Farmers Groups.

Table 2  
Problems Identification for maize farmers in Bontonombo, Jeneponto District, 2012

<b>NO</b>	<b>Problems identification</b>
1	High wage labor
2	Limited labor
3	Less fertile land and rocky

4	Low Production
5	Low rainy season
6	Low durability seeds
7	Seeds will not grow
8	Seeds from government is always late
11	High seeds
12	High fertilizer prices
15	Rat
16	fertilization techniques not proper
17	Pest
18	Operational equipment less
19	Low output price
20	Marketing only at the local level
21	Institutional is not function
22	Sold by corn wet conditions

**Source: Nursini, Amrullah, Sultan Suhab, 2012**

While the problems faced by maize farmers at Kaloling village, was generally similar to Bontonompo village. In Kaloling village, problems related to the production process, among others; limited water especially during the planting season. This is caused by the lack of rain; labor is not available in Kaloling Village such that labor must be from outside the village with a high daily wage, low knowledge about fertilizer requirements, no maximum dosage, type of pest disease is unknown, there is no technology to harvest corn, seeds is late from the government, and institutional farmers are not functioning.

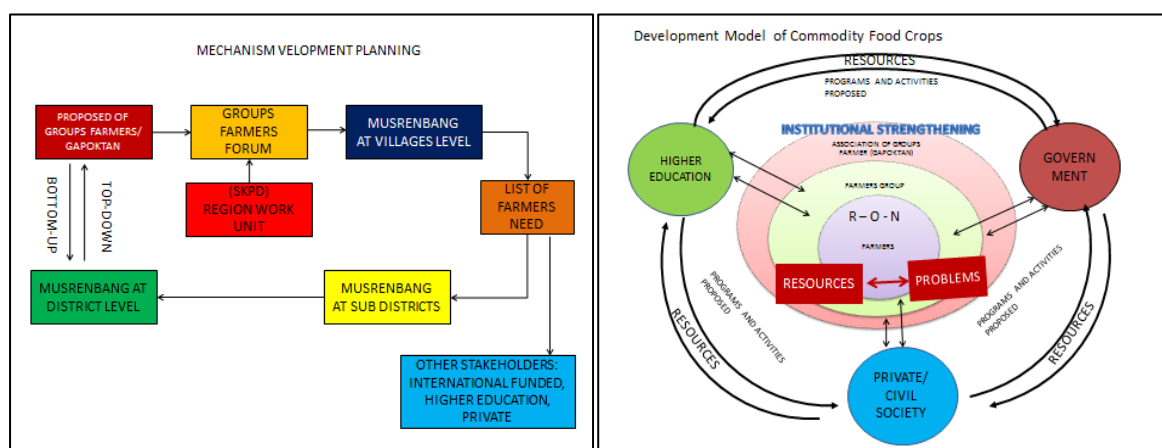
These problems greatly affect the income earned by farmers. The central problems for maize farmers are labor costs. In general, maize farmers hire labor for all stages of production that is planting, processing, up to the time of harvest. Cost of labor is quite high with an average ranging between Rp 35,000-Rp 45,000 for one day in Kaloling. While in Bontonompo, the average wage is Rp 40,000. Each farmers hire workers on average 3-5 people for one day.

#### 4.2. Model Development Design

By looking at all the problems faced by farmers in the survey areas, basically most of these problems can be solved by the farmers themselves, both individually and in groups without intervention from the government. This means strengthening the capacity of farmers and farmer groups need to be done. Institutional strengthening is particularly in relation to planning. Each farmer groups should be able to draw up plans based on the needs of members of farmer groups

The model developed to overcome the problems faced by farmers is institutional strengthening model for the farmer groups which are directed at how each farmer group

could identify their problem and how to solve it according to their resources. Problems that are not able to be solved in groups will be proposed to the village/local government, or district government through consensus building mechanism (Musrenbang), or to the donor, or to the Higher Education. Therefore, each farmers group in the village is expected to draw up a plan or a list of activities that need further reunited into one forum which is called forum farmer groups. The results of the forum will be a discussion of farmer groups in Musrenbang at the Village. Output from Musrenbang will results a List of Farmers Needs that could be financed by local governments and can also be financed by other stakeholders eg Donors, Private sector, or University.



Source: Nursini, Amrullah, Sultan Suhab, and Tawakkal, 2012

Figure 1. Development Model of Crops Commodity

#### 4.3. Socialization of Model

Model Development for Crop Commodities produced quite realistic and more operational. This means the model can be implemented at the farm level. Participants (local government officials) are responding to the model because it can improve the knowledge of the farmer groups to formulate their needs associated to their own resources. So far, when planning forums (Musrenbang), a lot of activities plan from the farmers are not accommodated because the proposal is basically not a requirement. The results of the study, 94 percent of participants expressed the opinion that the model of development of food crops through the strengthening of farmer groups can be applied, the remaining approximately 6 percent (one person) who declared unfit because not all institutional system contains information about the requirements.

Some of the reasons put forward by the participants associated with the opinion stated "decent" namely:

Table 3. The Opinion from the participants" about decents or effective of the model

Farmer groups can truly improve their welfare
The model can synchronize between groups farmers forum and Works Unit of local government (SKPD)
List of farmers' needs in accordance with the plan of government programs
Farmers can help to identify the problem itself
Farmer groups are empowered to participate in the planning mechanism

To create synergy and synchronization between government programs and the needs of farmer groups ( bottom-up and top-down )
Farmers needs are more clear and focused
The model can accommodate / know the needs of farmers
The needs of farmers are more easily controlled and easier to extension
To increase the income of farmers
Farmers can plan what will be implemented
With the model, farmers are expected to resolve the problem

Source: Primary Data Processed , 2013

Based on these reasons, it could be concluded that the development model of food crops through strengthening farmer groups can be applied and can contribute to the improvement of regional development planning mechanism. One purpose of the development model is to improve the system of development planning at the lower level (in the village) through the integration of farmers' group forum. Based on the survey, all participants stated that integration forum farmer groups can be applied in the planning mechanism and conducted before Village Musrenbang.

Although the model can be applied, but did not rule conflicts during the implementation because of (i) many farmer groups is not function as a group, (ii) There is no regulation that links between farmer groups forum and Department of Agriculture, (iii) Focus on farmer groups only, (iv) Synergy between the groups and working units (SKPD) is not yet maximized, (v) taking long time, (vi) Community participation is usually low.

The application of institutional strengthening model of farmer groups in rural areas is expected to increase the capacity of farmer groups in solving the problem. In addition, farmers can be involved in the planning process so that their need can be considered by policy maker. In other word, the existence of government and other stakeholders are just as mediator. When farmers are not able to solve their problem or meet their needs because of the limited resources they have, then government intervention is needed. Thus, if a farmer or farmer group is improved their knowledge such that the farmers can increase their income in the future through increased scale farming.

The results of the questionnaires showed that 100 percent of respondents stated that the application of the model in the long term will increase crop production. The reason is (i) farmers propose real needs not their wants, (ii) there is synchronization between top-down and bottom-up planning, (iii) proposed from the farmers associated to programs and activities from government), (iv) harmonization between actors in rural development, (iv) the needs of farmers can be precisely known.

#### 4.4. Model Implementation at Kaloling Village

The application of the model have done by training to farmer groups. There are three modules were delivered to the participants, namely i) the module of Participatory Rural Approach (PRA), ii) Integration Group Farmers Forum into Musrenbang, and (iii) preparation of budget plans for each activity. But the most interesting module according to participants is PRA modules. In practical, the participants were divided into five groups and each group guided by the head of the group.

Problems and needs for farmers can be grouped into two categories, namely physical and non-physical. Non-physical such as needs related to the provision of knowledge in the form

of training, while the physical requirements include the provision of water pumps, drying floor, warehouse, irrigation, provision of seed and seedlings.

Table 4. Classification of Farmers Needs at Kaloling Village

No	Physical Needs	Non-Physical Needs	Name of Groups
1	Drying floor	Training for how to sell the product	Bunga Harapan, PR Jatia Kaloling Village
2	Warehouse	Training how to prepare seeds	Amanah Group and Bunga Harapan Group
3	Irrigation	Training how to make toxic pest	Kaloling II, Amanah Group
4	Water Pumps		All groups (except Amanah Group)
5	Seeds		All groups (except Amanah Group)
6	Seedlings		Kaloling II
7	Artesian Well		Lele Caddi and Jatia Kaloling

Source: Primary data, 2013

In the work plan documents (Renja) of the Department of Agriculture and Livestock, there appears the local government's attention to the welfare of farmers in Bantaeng. This is illustrated in the first point of the 6 objectives listed in the work plan in 2014 that is "increase the income and standard of living of farmers through the development of systems and agribusiness ventures". Consistency proposal from farmer groups with the activities of Department of Agriculture and Livestock in 2014 are as follows:

Table 5 Consistency between activities proposed of Groups Farmers and Activities from SKPD (Department of Agriculture and Livestock), in Bantaeng

No	Programs of SKPD	Activities Plan in 2014	Activities Proposed of Groups Farmers (List of needs Farmers)	Location
1	The Increasing of farmers welfare Programs	Procurement of Hand Tractors	Tractors	Activities proposed is Consistent but not consistent for the location (Kaloling)
		Procurement of Power Tresher	No activities	
		Procurement of Com Seller	No activities	Kaloling Village
		Rice Miling Unit	No activities	
		Hand Sprayer	No activities	
2	Programs of the increasing of food safety	Data base for potential crops productions	No activities	

		Monitoring and evaluation for agricultural subsidies policy	No activities	
		Operational Mentoring escort P2BN	No activities	
		Utilization of the yard to the development of food	No activities	
		Development intensification of rice, pulses	No activities	
		Observations and pest control	No activities	
		Development of horticulture crop diversification	No activities	
		Combating pest and diseases crop explicit	No activities	
		Development of infrastructure for farmers and production	Infrastructure	
		Development of hatchery / nursery	No activities	
		Rice seed	Rice seed	Different location
		Seed corn	Corn Seed	Different location
		Paddy, maize (SL-PTT, BLBU, CBN, APBN-P)	Seedlings	Gattareng keke
<b>3</b>	The increasing of production and product marketing	Promotion of production	No activities	
		Development of agricultural production center	No activities	
		Research and Technical Development	No activities	
		Development of warehouse processing seeds	Warehouse	At district level
		Procurement drier	No activities	In Bantaeng district
		Development of drying floor	Drying floor	In Bantaeng
		Development networking irrigation	Irrigations	Different location
		Water resources Development for crops	Water pumps	Different location
		Development of participatory irrigation	No activities	



		Extension application of agricultural technology	Training	Different location
4	Increasing agriculture product of	Development patterns of SRI	No activities	
		Control of production loss	No activities	
		Development of crop breeding centers	No activities	
		Nursery of fruit trees	No activities	
		Low land vegetable seedling development	No activities	
		Development of fruit nurseries	No activities	Kaloling

Source: Renja of Work Units Agriculture and Livestock (processed data), 2013

Table 5 shows the consistency between the proposed farmers' groups (Kaloling village) and the proposed work plan of the Department of Agriculture and Veterinary Office in Bantaeng. It is seen that some of the activities planned by the Department of Agriculture consistent with the proposal from farmer groups (case of Kaloling Village). It means that these activities are needed by farmers. However, farmers are not only in the Kaloling but also scattered throughout the villages and districts in Bantaeng, so even though the proposal of farmers is consistent with the work plan of SKPD, but the determination of the location planned by the Department of Agriculture is different.

Proposed of the farmer groups is more related to marketing than other programs. This means that marketing issues are more related to post-harvest aspects. This is due to the low quality of the harvest.

#### 4.5. Model Implementation in Laleng Bata, Pinrang District

Each farmer groups produced a number of problems and identification of needs in accordance with its resources. The problems can not be solved by farmer groups, it will be proposed to the village level through village budget allocations (ADD) or district level through the district budget (APBD).

Table 6 Need Identification based on Physical and Non-Physical in Laleng Bata, Pinrang

NO	Name of Farmer Group	Physical Need	Non-Physical
1	Jawi-Jawi	Availability narrator chili seeds, beans and pumpkins.	
			Comparative study (farmers need to visit other area)
2	Proteksi	Large pipe	coaching or mentoring to the farmer groups

<b>3</b>	<b>KT. Tellu TemmasarangE</b>	Need fingerlings and assistance to farmers	Activation / Coaching KUD and Gapoktan to provide loan capital
			Development and Coaching Cooperation
			Coaching, provision of chili seeds and development of vegetable in the rice field
<b>4</b>	<b>Mawar</b>	Women farmers need seeds of vegetables and plant pots	Women farmers needs counseling and training
			Need training utilization of manure as organic fertilizer
<b>5</b>	<b>Suka Maju</b>	hand tractor	Capital provider
		seed crops	Capital for farmer groups

Source: Primary data, 2013 (discussion result)

Table 6 shows that the proposed of farmers groups is more non-physical than physical needs namely improvement of human resources capacity (farmer groups). While physical needs are the provision of seeds and seedlings. To further examine the consistency between the proposals from the farmer and the proposed from the Department of Agriculture is shown in Table 7.

Table 7 Consistency between the Action Plan of the Department of Agriculture and Livestock and the proposal from farmer groups in Laleng Bata, Pinrang

No	Programs from SKPD of Agriculture	Activity plan in 2014	Proposed activities from Farmer group (List of needs)	Location
1	Increasing farmer welfare Program	Training and coaching for farmer group	No activity	Lempa (different location)
		Farm development studio	No activity	Teppo village, Mattunrutunru, Pakki, Marawi, Maccorawali villages
		socialization agribusiness development	No activity	Watangsawitto sub district
		Counseling and coaching for farmer: capital for women farmer in Rajang Village	The same Activities	Different location
		Capital	The same activity	Different location
2	Program of increasing	Promotion	No activity	
		Development for centre	No activity	

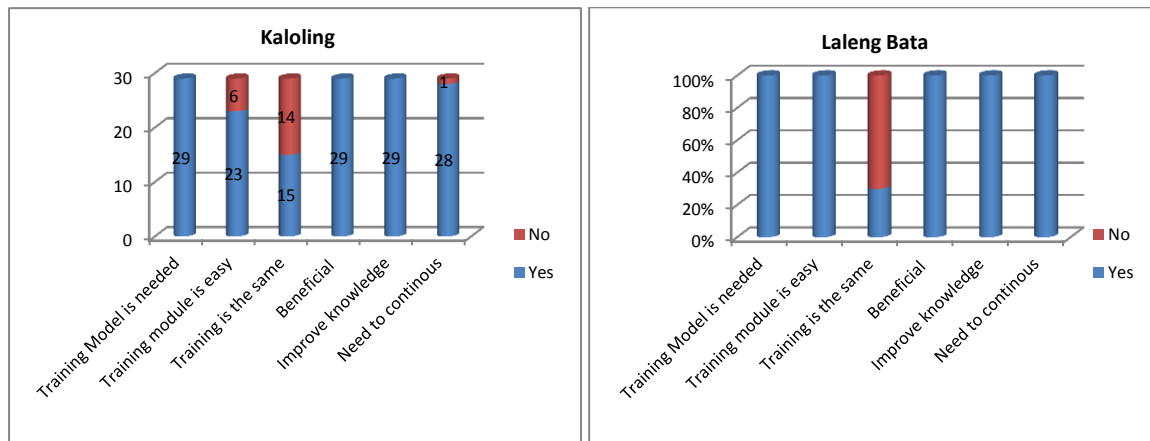
	marketing for agriculture production	production		
		Management of agriculture information	No activity	
		Marketing distribution	No activity	
3	Improvement of agriculture technology	Research and Development	No activity	
		Procurement infrastructure such as hand traktor, water pumps, Rice transpainter, pumping and drill wells	The same activity	Sabbangparu village, Binanga Karaeng, Watang Kessa village
		Development of home composting	No activity	
		Development of organic fertilizer processing unit	No activity	
		Training and operational guidance technology	The same activity	
4	Increasing agriculture production	Counseling for production increasing	The same activity	
		Fertilizer for farmer group		Mattiro Tasi Village
		The strengthening of the supervisory fertilizer	No activity	
		Adjacent to the dealer fertilizers pesticides	No activity	
		Development of seeds as regional development chilies, melon, strawberry area, red onion	The same activity	Different location
		GAP field school	No activity	
		Post-harvest handling	No activity	
		Dross corn	No activity	
		Paddy cutting machine	No activity	
		SLPTT paddy commodity	No activity	
		Seed development	The same activity	Different location
		Provision of farm roads	No activity	

Source: Work plan of SKPD Agriculture in Pinrang, 2013

After identifying programs and activities planned by the Department of Agriculture and Livestock in Pinrang District, there appears to be some proposal from farmer groups in Laleng Bata are consistent or equal to the activities plan proposed by the Department of Agriculture and Livestock. However, the location of the implementation of the activities are not in Laleng Bata.

In general, the application of the model through institutional strengthening of farmer groups responded positively by the farmers for both the District of Pinrang and Bantaeng. Of all participants (farmers) are present in the training states that this training models is very useful because it can be thought of farmers digging through discussion and eventually produced

the list of needs for each farmer group. Then the results of these discussions can be proposed at the village level especially at Musrenbang Village.



Source: Primary data, 2013

Figure 2 Respond of Participants in Laleng Bata and Kaloling

## 4.6. Conclusions

- 4.6.1. Development model of food crops responded positively by participants. This means that the model implementation is feasible at farmers/farmer groups level.
- 4.6.2. Capacity of farmers / farmer groups increased after training although within a relatively very short. This is shown by the list of needs of each farmer group as output from the discussion group.
- 4.6.3. The increasing of knowledge for the farmers groups through training may increase their income in the long run.
- 4.6.4. It is recommended that each farmer group always interact with its members so that the problems encountered can be solved together according to their potential. Unresolved problems will be discussed at the Forum farmer groups.

## References

- Abdullah Buang. 2002. Development of New Type Rice. Paper presented In Field Meeting Seminar BALITPA di KP. Pusakanegara, Subang 26 September 2002
- Adri Said (2007). Characteristics relationship Farmers and the Social Environment Technology Utilization Rate of Rice Farmers in South Sulawesi in the set of Abstract Research Institute Research UNHAS 2006-2007. Institute Research UNHAS.
- Alihamsyah T., Muhrizal Sarwani dan Isdianto Ar-Riza. 2002. Main Components Technology Optimization of land Tidal Rice Production as a Source of Future Growth. In Science & Technology Seminar Paper presented to the National Rice paddy Week di Sukamandi 22 Maret 2002.
- Ananto Eko. 2002. Development of Agricultural Land Tidal marsh to Support Increased Food Production. Seminar Paper presented In Science & Technology to the National Rice paddy Week in Sukamandi 22 Maret 2002.
- Anonim. 2003. Research and Development of Food Crops in Relation to Organic Farming Systems. Paper Technology Development at the Emperor Hotel in March 2003.
- Anonim. 2003. Research and Development for crops related to organic agriculture system. Research and Development Center for Crops.
- Anonim 2008. Corn Cultivation Technology. Agency for Agricultural Research and Development, Innovation Book Series, TP/04/2008.

- Anonim 2009. Development Analysis of Agricultural Commodities Prices. Center for Agricultural Data and Information, Bulletin :1412-5102 August
- Andi Mangkau, 2010. Early research studies the characteristics of corn cob briquettes burning with rice husk composition. *Mechanics, Journal of Mechanical and Industrial Engineering*.
- BPS 2011. Press Release No.72/11/Th XIV, November 7 Directorate of Food Agriculture-Bappenas (2011). Proceedings of the Agricultural Trade Policy in the Era of Global Trade. Retrived from Internet dated 15 November 2011
- Gurdev S. khush. 2002. *Food Security By Design: Improving The Rice Plant in Partnership With NARS*. Paper presented in seminar IPTEK of rice. National Rice in Sukamandi March 22, 2002.
- Purba S. dan Las I. 2002, Regionalization of Rice Production Enhancement Strategy Options. Paper presented in Seminar ITPEK of rice at Sukamandi 22 Maret 2002.
- Mahyudi Nakar (2011). Urgency Corn Development in Indonesia. *Irrigation Indonesian Communication Networks*. No.32 thn X PSDAL-LP3ES. Retrieved dari Internet 15 Nopember 2011.
- Mashar Ali Zum, 2000, Biological Technology Bio P 2000 Z In Effort to Spur Productivity of Organic Agriculture in Marginal Land. Paper presented workshops and training in organic technology Cibitung May 22, 2000.
- Moeljopawiro Sugiono. 2002. Biotechnology for Improved Productivity and Quality of Rice. Paper presented seminar IPTEK of rice. Paper presented in Seminar ITPEK of rice at Sukamandi 22 Maret 2002.
- Nursini, Amrullah, Sultan, and Tawakkal, 2013. Research Report on Development Model of food crops in increasing income of Farmers in South Sulawesi. Report. Research Institute of Hasanuddin University
- Nursini, Amrullan, Sultan, 2013. Development Model of Foor Crops In Increasing Income of Farmers in South Sulawesi. *Mimbar Journal of social and development*. Unisba Vol 29 No.1 (June 2013): 1-122
- Sri Adiningsih J., M. Soepartini, A. kusno, Mulyadi, and Wiwik Hartati. 1994. Technology to Increase Productivity Wetland and Dryland. Proceedings of the Meeting of Consultation of Land Resources for Development in Eastern Indonesia Palu 17 to 20 January 1994.
- Work Plan (working plan) Department of Agriculture and Animal Husbandry Pinrang, 2014  
Work Plan (working plan) Department of Agriculture and Veterinary Office Bantaeng, 2014
- Permendagri 54 of 2010 on Procedures for Preparation and Evaluation Regional Development Planning.