Analysis of soybean farmers income that involved and not involved in The Pajale Special Efforts Program (UPSUS)

N Lanuhu1, Saadah1, Mahyuddin1, Darwis1, P Diamsari1, A Sulili1, A Wirdansyah1 and Nurtaela2

1Department of Socio-Economic of Agriculture, Faculty of Agriculture, Universitas Hasanuddin, Jalan Perintis Kemerdekaan KM 10, Makassar (90245), Indonesia
2Universitas Sulawesi Barat, Indonesia

E-mail: lanuhunuradin@gmail.com

Abstract. The UPSUS program (Special Efforts) is one of the efforts to support soybean self-sufficiency. Special Efforts (UPSUS) are the main program of the Ministry of Agriculture to improve the welfare of farmers. Through a special effort program (UPSUS), Pajale is expected to be able to be a learning material for farmers in increasing their farming production and productivity to increase the income and welfare of the farmer's family. This study aims to analyze the income of soybean farmers who are not involved and who are involved in the Special Efforts (UPSUS) Pajale program. The population of the study was 150 farmers who were involved in the UPSUS Pajale Program using the purposive sampling method. The analysis used in this study was income analysis by calculating the income, costs, and receipt of soybean farmers involved and not involved in the Special Efforts (UPSUS) Pajale program. The results of the study concluded that farmers who participated in Pajale's Special Efforts Program (UPSUS) had higher incomes than those who did not participate in the Pajale Special Efforts Program (UPSUS) in the three research sites.

1. Introduction

Indonesia's population has reached more than 237,641,326 people with population growth reaching 1.40%[1]. Food problems become one that must be addressed, especially for soybean commodity. Soybeans are the main strategic food crop, the most important after rice and corn. Based on national economic survey data in 2014, the average tempe consumption per person per year in Indonesia is 6.95 kg and 7.068 kg of tofu. Ironically, the need for soybeans as raw material for tempe and tofu is 67.28% or as much as 1.96 million tons must be imported from outside[2] and it is a huge amount for a country dubbed as an agricultural country.

Because of these problems the Ministry of Agriculture was planned a Special Efforts program to achieve sustainable rice and corn and soy self-sufficiency, better known as the Pajale UPSUS program[3]. Through this program, the government targets production to be achieved in 2015, namely rice production of 73.40 million tons with a growth of 2.21%, corn of 20.33 million tons with a growth of 5.57% and soybeans of 1.27 million tons with an increase of 26.47%.

Pajale's Special Efforts (UPSUS) are special efforts made by the government to increase crop production and land productivity, but this is not as easy as we think. In this effort to grow, there will be many challenges or obstacles encountered later. Challenges or problems that arise than can be temporary or in the long term, such as land conditions that do not support both the area of land or the
capacity and level of soil fertility itself or the level of farmers' readiness for this UPSUS program itself.

Three main food commodities are targeted in their achievements in Pajale's special efforts (UPSUS), namely rice, corn, and soybeans. However, the focus of the research is an individual effort on soybean plants. This commodity provides a substantial contribution to the provision of nutritious food for humans because of the high-quality protein amino acids, balanced and complete. It is necessary to know how the impact of this Pajale Special Efforts (UPSUS) program on the production and productivity of soybean commodities in ensuring its availability for the community. Soybean production centers in South Sulawesi, scattered in several districts including Bone Regency, Soppeng Regency and Wajo Regency. Based on the background, this study aims to analyze the income of soybean farmers who are not involved and who are involved in the Pajale Special Efforts (UPSUS) program.

2. Methods
This research was conducted in three locations, namely in Kajaolaliddong Village, Barebbo District, Bone Regency, Attang Salo Village, Marioriawa District, Soppeng Regency and Tancung Village, Tanasitolo District, Wajo Regency. Site selection was made by purposive sampling. The collection was made with the consideration that the location was involved in the Pajale Special Efforts program in which the farmer groups in the village had great attention to government programs. The type of data used in this study consisted of primary data and secondary data. Data were obtained from direct interviews with respondents who were members of six farmer groups in three districts, namely Bone, Soppeng and Wajo using a questionnaire, whereas secondary data was obtained from local agencies or institutions.

The population of the study was farmer groups involved in the UPSUS Pajale Program and farmer groups who were not involved in the UPSUS Pajale program, with 25 members of each farmer group so that the number of respondents was 150 people using the census method[4]. Census method is a complete data collection method in which all elements in the population, the object of the research, are investigated/enumerated one by one. Census is carried out if all elements/members are observed and the results are actual data (parameters)[4].

To find out the income (profits) obtained by farming can be calculated using the following formula[5]:

\[ \text{Income} : I = TR - TC \]

Where:
- \( I \) = Income
- \( TR \) = Total revenue
- \( TC \) = Total cost

Costs : \( TC = TFC + TVC \)

Which is:
- \( TC \) = Total cost (IDR)
- \( TFC \) = Total fixed cost (IDR)
- \( TVC \) = Total variable cost (IDR)
Income: \[ TR = P \cdot Q \] (3)

Where:
- \( TR \) = Total revenue (IDR)
- \( P \) = Price (IDR/Kg)
- \( Q \) = Quantity (Kg)

3. Results and discussions

The farmers are generally of productive age range from 36-45 years either involved or not involved in the UPSUS Pajale program. Most of the education in junior high school/equivalent with 23 people for respondent farmers who did not participate and 23 people for respondent farmers who participated in the program. The average farmer has quite a long experience in farming paddy fields. This is evident from the results of research that shows that farmers have 20-29 years of experience in farming. Farming activities were discussed starting from the process of land management, planting, fertilizing, spraying, harvesting to the transportation process.

3.1. Land processing

Soybean farmers in Kajolaliddong Village conduct different land management. Samaenre Farmers Group is a farmer group that does not participate in the UPSUS Program. They only cultivated the land using a mower to clear the land before planting, with an average depreciation of IDR 196,875,-/Ha. The farmer groups participating in the UPSUS Program, which is the Tocinae Farmer Group, use a tractor to do land management with an average depreciation of the equipment of IDR 1,518,338,-/ha. The results of the study on-site showed the cost of renting a mower of IDR 5,000,-/are and rental costs for tractor engines of IDR 10,000,-/are. The average cost of renting a mower of IDR 500,000,-/Ha for farmers in the Samaenre farmer group while the average rental cost of tractor machines is IDR 1,000,000/Ha for farmers participating in the Pajale Special Efforts Program (UPSUS), in this case, is the To Cinae farmer group.

The equipment used in land management in Tancung Village consists of a tractor to plow the land and a hoe to help level the soil. The average depreciation tool for farmers who did not participate in the Special Efforts Program (UPSUS) for tractors was IDR 1,571,429,-/ha and for hoes IDR 19,975,-/ha. The value of depreciation of equipment for farmers participating in the Special Efforts Program (UPSUS) for tractors is IDR 1,467,857/Ha and for hoes IDR 17,346/Ha. The results showed that the tractor rental costs ranged from IDR 7,000/acre, according to an agreement between the landowner and the tractor owner. The average tractor rental fee is IDR 700,000,-/Ha for farmers who do not participate and who participate in the Pajale Special Efforts Program (UPSUS).

Land management carried out by soybean farmers in Kelurahan Attang Salo only uses tools in the form of grass cutting machines to prepare the land before planting soybean seeds. The average depreciation tool for lawn mowers is IDR 95,833,-/Ha for farmers not participating in the Special Efforts Program (UPSUS) and IDR 66,026,-/Ha for farmers participating in the Special Efforts Program (UPSUS). The results of the study show that the cost of renting a mower ranges around IDR 500,000,-/Ha, according to the agreement between the landowner and the owner of the mower.

3.2. Cultivation

Planting in the village of Kajaolaliddong and the Village of Tancung is usually done by involving labor in the family (TKDK). Unlike the soybean farmers in Attang Salo, most of the soybean farmers in that location use out-of-family labor (TKLK) to do the planting by paying a piece rate. The average planting costs incurred by farmers who do not participate in the Special Efforts Program were IDR 1,328,775,-HOK/Ha in Kajolaliddong Village, IDR 700,000,-HOK/Ha in AttangSalo, and IDR 946,550,-HOK/Ha in Tancung Village. Meanwhile, the cost of planting farmers participating in the Special Efforts Program (UPSUS) is IDR 1,265,104,-HOK/Ha in Kajolaliddong Village, IDR 700,000,-HOK/Ha in Attang Salo, and IDR 1,018,021,-HOK/Ha in Tancung Village.
3.3. Fertilizing
Fertilization is usually done as much as two times, namely at the beginning of planting or when plants are 1-2 weeks after planting, and in mid-planting or when rice is about 3-4 weeks after planting. The average fertilizer costs incurred by farmers who did not participate in the Special Efforts Program were IDR 96,000,-HOK/Ha in Kajolaliddong Village and IDR 88,067,-HOK/Ha in Tancung Village. In the contrary, the cost of fertilizing farmers who participate in the Special Efforts Program (UPSUS) is IDR 111,387,-HOK/Ha in Kajolaliddong Village and IDR 88,067,-HOK/Ha in Tancung Village.

3.4. Breeding
Soybean maintenance includes pest and disease control and weeding. Pest and disease control in the three study sites were carried out through 1-3 spraying times following the conditions of the plants at that time. The value of spray depreciation for farmers not participating in the Special Efforts Program (UPSUS) is IDR 93,711,-/Ha in Bone Regency, IDR 51,517,-/Ha in Soppeng Regency, and IDR 67,189,-/Ha in Wajo Regency. Additionally, for the farmers who participated in the Special Efforts Program (UPSUS), the value of spray depreciation is IDR 41,270,-/Ha in Bone Regency, IDR 40,240,-/Ha in Soppeng Regency, and IDR 49,200,-/Ha in Wajo Regency.

3.5. Harvest and postharvest
Most farmers in the three study locations harvest soybean stalks using sickles and thresh soybeans using threshing machines. In harvesting (Mattebbang), the farmers in Bone and Wajo Regency still use labor in the family, which is usually the wage per person range from IDR 40,000 to IDR 50,000 per day. The average cost of labor in Bone Regency is IDR 1,396,613,-HOK/Ha for farmer groups not participating in the Special Efforts Program (UPSUS) and IDR 907,231,-HOK/Ha for farmer groups participating in the Special Efforts Program.

Farmers in Soppeng Regency choose to use non-family labor in the harvesting process (Mattebbang) with a wholesale system with a wage of IDR 900,000,-/Ha. An average labor cost in harvesting issued by farmers both participating and not participating in Special Efforts Program (UPSUS) is IDR 900,000,-/Ha. The average labor costs incurred in harvesting process in Wajo Regency amounted to IDR 1,001,800,-HOK/Ha for farmer groups who do not participate in the Special Efforts Program (UPSUS) and IDR 1,009,163,-HOK/Ha for farmer groups participating in the Special Efforts Program (UPSUS).

For threshing soybeans (maddonto), soybean farmers from all three locations use non-family labor but with different wage systems. Farmers in Bone Regency provide wages to workers in the threshing process through a harvest sharing system. The Samaenre Farmer Group delivers a yield of 1 kg of soybeans for every 9 kg of the crop (1: 9), while the Tocinae farmer group issues 1 kg of soybeans for every 8 kg of the crop (1: 8). It is different from Soppeng and Wajo Districts which provide piece-rate wages to workers based on the total return of IDR 715 / kg for Soppeng Regency, and IDR 600,-/kg in Wajo Regency. The average labor costs incurred in the threshing process are IDR 1,067,383,-HOK/ Ha in Bone Regency, IDR 2,057,770,-HOK/Ha in Soppeng Regency, and IDR 1,504,800,-HOK/ Ha in Wajo Regency from farmer groups who do not participate in the Special Efforts Program (UPSUS). For the farmer groups participating in the Special Efforts Program (UPSUS), the average cost is IDR 1,587,429,-HOK/ Ha in Bone Regency, IDR 2,155,725,-HOK/ Ha in Soppeng Regency, and IDR 1,556,600,-HOK/ Ha in Wajo Regency.

Soybeans have been harvested are collected for transported from the land to the roadside or directly to the house. Workers who carry out this transport will usually be paid IDR 10,000 to IDR 15,000 per bag. The average cost incurred for transporting farmers who did not participate in the Special Efforts Program (UPSUS) is IDR 159,900,-HOK/ Ha in Bone Regency, IDR 287,800,-HOK/ Ha in Soppeng Regency, and IDR 366,650,-HOK/ Ha in Wajo Regency while the average cost spent for transporting farmers participating in the Special Efforts Program (UPSUS) is IDR 159,610,-HOK/ Ha in Bone Regency, IDR 302,000,-HOK/ Ha in Soppeng Regency, and IDR 394,450,-HOK/ Ha in Wajo Regency.
3.6. Farm income

Farm income is the difference between revenue and total costs incurred during the production process. The pay in this study is the income obtained by farmers who participate and O not participate in the Pajale UPSUS program in three districts, namely Bone, Soppeng and Wajo. The data regarding farmers' income can be seen in Table 1.

| Farm income          | Non-participating UPSUS value (IDR) | Participate in UPSUS value (IDR) |
|----------------------|------------------------------------|----------------------------------|
| Bone district        | 4,072,330,-                        | 4,977,966,-                      |
| Soppeng district     | 14,292,653,-                       | 14,734,502,-                     |
| Wajo district        | 10,140,786,-                       | 10,624,157,-                     |

Table 1 shows that the income of farmers who participate and do not participate in the Pajale Special Efforts Program (UPSUS) had a high average income in Soppeng District compared to other districts. This is because the products produced in Soppeng Regency is higher than Bone and Wajo districts.

4. Conclusion

In terms of income, farmers who participate in the Pajale Special Efforts Program (UPSUS) had higher incomes compared to those who o not participate in the Pajale Special Efforts Program (UPSUS) at all three study sites.

References

[1] Badan Pusat Statistik 2016 Distribusi dan kepadatan penduduk menurut Kabupaten/Kota di Provinsi Sulawesi Selatan, 2015
[2] Direktorat Jenderal Tanaman Pangan 2016 Realisasi produksi kedelai Kementeri. Pertan.
[3] Kementerian Pertanian 2015 Petunjuk Pelaksanaan Pendampingan Mahasiswa dalam Upaya Khusus Peningkatan Produksi Padi, Jagung, dan Kedelai
[4] Nurhayati 2008 Studi perbandingan metode sampling antara simple random dengan stratified random J. Basis Data3
[5] Ali I 2014 Analisis faktor-faktor yang mempengaruhi tingkat pendapatan keluarga petani miskin di kota makassar (Universitas Hasanuddin)