

DETERMINATION AND MAPPING OF LEADING PRODUCTS IN THE AGRICULTURAL SECTOR IN BANYUMAS REGENCY

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Abstract

Starting from the 2023 Banyumas Regency GRDP data which shows the amount of contribution of the agricultural sector and an increasing trend every year, however, the amount of growth of this sector is smaller than other sectors in the top five. This is certainly very contradictory considering that Banyumas Regency has a comparative advantage in the form of a landscape and climate that greatly supports agricultural sector activities. For this reason, a development strategy is needed in the form of selecting leading products to increase productivity. This study aims to determine leading products in each sub-district and to map leading products in the agricultural sector in Banyumas Regency. The study was conducted using overlay analysis to determine leading products by combining the results of location quotient analysis, growth ratio models and shift-share analysis supported by contribution analysis and Klassen typology. The results of this study show the distribution of leading products in each sub-district in Banyumas Regency which are mapped using a geographic information system (GIS).

Keywords: Leading Products, Agriculture Sector, Overlay

INTRODUCTION

To optimize existing resources in order to achieve regional development and improve community welfare, regional development can be carried out. Regional development is a comprehensive and integrated step from various aspects of activities based on existing resources and has a contribution to the development of a region (Nurlaili & Aulia, 2020). One of the regional development steps is to determine leading products (Sandriana et al., 2015). The selection of leading products will make an area focus on certain products so that the area will be specialized and more effective guidance in accordance with regional potential in order to increase product competitiveness and regional added value.

Regulation of the Minister of Home Affairs (Permendagri) Number 9 of 2014 concerning Guidelines for the Development of Leading products defines a leading product as a product of goods or services produced by cooperatives, MSMEs, and potential to be developed by utilizing local resources and bringing income to the community and government which is expected to become an economic force. This product is expected to have high competitiveness in the market both at home and abroad. A product can be called leading if it has competitiveness so that it can counteract competing products both in the domestic market and export market (Sudarsono, 2001). Regional leading products explain the ability of a region to produce products, create value, make real use of resources, provide employment opportunities, provide income for both the community and the government, and have prospects for increasing productivity and investment (Krismawan, 2017).

One of the regions whose development is oriented towards increasing income and welfare is Banyumas Regency. Banyumas is one of the regencies in Central Java that has an area of 1,327.59 km² and consists of 27 sub-district. Banyumas Regency has a comparative advantage as an agricultural region supported by resources and natural landscapes. Pangestika (2023) states that

Banyumas Regency has leading or potential sectors in the form of agriculture, livestock and fisheries supported by geography and demography. This is evidenced by the performance of the agricultural sector in its contribution to the GRDP of Banyumas Regency in 2021-2023.

Table 1 explains that the agriculture, forestry and fisheries sector always occupies the top five positions after manufacturing, wholesale and retail trade and construction. This sector shows an increasing trend from year to year. In the 2021 pandemic, this sector contributed 4.64 trillion and had a contribution of 11.4% to GRDP in that year. The agriculture, forestry and fisheries sector consistently shows an increase in GRDP in the following years. The biggest increase in this sector occurred in 2022, which amounted to 95.4 billion rupiah.

Table 1. Gross Regional Domestic Product of Banyumas Regency

GRDP Sector		GRDP of Banyumas Regency at 2010 Constant Prices by Business Fields								
		2021			2022			2023		
		A	B	C	A	B	C	A	B	C
1	Processing Industries	9,49	3,75	23,33	9,93	4,59	23,06	10,48	5,53	23,08
2	Wholesale and Retail Trade; Repair of Cars and Motorcycles	6,81	6,06	16,74	7,09	4,12	16,47	7,51	5,81	16,53
3	Construction	5,36	7,62	13,19	5,50	2,47	12,76	5,68	3,36	12,52
4	Agriculture, Forestry and Fisheries	4,64	0,93	11,4	4,73	2,06	10,99	4,82	1,85	10,62
5	Information and Communication	3,29	4,92	8,08	3,36	2,11	7,8	3,70	10,3	8,16
GRDP of Banyumas		40,69			43,07			45,40		
A:	GRDP (IDR Trillion)		B:		Growth (%)		C:		Contribution (%)	

Unfortunately, the increase in the contribution of the agriculture, forestry, and fisheries sector to the GRDP of Banyumas Regency is not accompanied by stable growth and shows a decreasing contribution. After reaching a growth of 2.06% in 2022, this sector experienced a decline in growth in 2023 by 0.21% to 1.85%. When compared to the other four sectors in the top five GDRP of Banyumas Regency, the growth of the agriculture, forestry and fisheries sector is the smallest.

Several previous studies explained the leading products in the food sector in Banyumas Regency. Destiningsih (2016) conducted research on determining superior commodities in Banyumas Regency using Static Location quotient (SLQ) and Dynamic Location quotient (DLQ) analysis. Furthermore, Bambang, (2016) mapped the potential of villages in Banyumas Regency and identified the agriculture, livestock, plantation, fishery, industry, and trade sectors as their potential. He further explained that the majority of villages in Banyumas Regency produce rice, corn and cassava. Then another study was conducted by Khasanah (2018) using LQ analysis and identified paddy rice as a leading product in the food crop subsector and broilers as a leading product in the livestock subsector. Furthermore, Mudmainah and Khatimah (2022) used LQ analysis, and Shift-share Analysis (SSA) with a focus on agricultural sub-sector studies in Banyumas Regency. They found that food crops, forestry, and agricultural and hunting services have slow growth but high competitiveness. Horticultural crops have fast growth but are not competitive. While fisheries, plantations and livestock have fast growth and good competitiveness. Meanwhile, through Regent

Regulation Number 13 of 2024 the Banyumas Regency Government has determined regional leading products consisting of coconut sugar, durian, processed wood, essential oils, coffee, and dairy goats.

Unlike previous studies, this research will identify leading products at the sub-district level in Banyumas Regency. This research will also assess the suitability and recommend areas/sub-districts to develop the leading products of Banyumas Regency that have been determined. In determining the leading products of sub-districts in Banyumas Regency, this research uses several analytical tools, not only Location quotient (LQ) and Shift-share Analysis (SSA), but also uses Growth Ratio Model (MRP) analysis, Klassen Typology, Contribution Analysis and Geographic Information System (GIS) to determine the leading products of each sub-district in Banyumas Regency. Then an overlay analysis will be conducted to see potential leading products based on various existing analyses. This research will focus on the leading products in the agricultural sector of each sub-district in Banyumas Regency according to competitive advantage. Geographic Information System (GIS) mapping will be conducted to illustrate the distribution of leading products in each sub-district and their production centers in Banyumas Regency. The results of this research are expected to be able to serve as a guideline for the local government to develop leading products and for business actors to invest in Banyumas Regency.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

A. Economic Base Theory

This theory was proposed by Harry W. Richardson who explained that the main determinant of economic growth in a region is directly related to the demand for goods and services from outside the region (Arsyad, 1999). This theory argues that the rate of economic growth of a region is determined by the amount of increase in exports (Tarigan, 2005). It argues that a region will have a leading sector if it can win competition with other regions in the same sector so that it can export (Suyatno, 2000).

The Economic Base Theory classifies economic activities into two, namely sectors that encourage economic growth called non-base sectors and sectors that do not encourage economic growth or non-base sectors. To find out the base and non-base sectors can be done through location quotient (LQ) analysis.

B. Regional Development Theory

Regional development is a goal that all regions want to achieve. Regional development, when viewed from an economic perspective, is generally oriented towards increasing regional productivity with indicators being population, income, employment opportunities, and additional value from the processing industry sector (Putra, 2023). In Indonesia, regulations on regional development are regulated in Law No. 26/2007 on Spatial Planning, which is the main basis for regulating spatial utilization and regional development.

Friedman and Yarbrough (1985) explain that regional development is a strategy that utilizes and combines internal and external factors to increase regional production of goods and services that are a function of both internal and external needs. Meanwhile, Utomo (1999) explains regional development as an effort to increase welfare and improve the quality of life of the community, such as building production centers, providing easy infrastructure and logistics services. There are several theories on regional development such as neo-classical growth theory, regional inequality theory and growth pole theory.

C. Leading Product

To advance the regional economy, it must adjust to the potential possessed by each region. This is expected to be able to create leading products that can compete both domestically and abroad. The development of leading products is one of the effective strategies in regional economic development that produces products based on local advantages (Krismawan, 2017). Permendagri Number 9 of 2014 explains leading products as a product of goods or services produced by

cooperatives, MSMEs, and potential to be developed by utilizing local resources and generating income for the community and government which is expected to become a regional economic force. As in Permendagri Number 9 of 2014, the determination of leading products is carried out with a structured study and meets the criteria.

RESEARCH METHODS

The data analysis technique used in this research is quantitative analysis by utilizing several analytical tools to determine leading products and mapping of leading products in Banyumas Regency. This research uses data on the output of the agricultural sector of each sub-district in Banyumas Regency for the period 2020 to 2023 from the Central Bureau of Statistics. In determining the leading product of each sub-district, this research uses the results of overlay analysis of location quotient (LQ), shift-share analysis (SSA) and growth ratio model with the following criteria:

- LQ is considered positive if the LQ value > 1
- Shift-share Analysis is positive if the SSA value > 0 .
- Growth Ratio Model is positive if the RPs value > 1 ,

The leading products obtained from the results of the overlay analysis will be strengthened by the findings of the contribution analysis and Klassen typology. These results will be processed into a map with a geographic information system (GIS) using Quantum Geographic Information System (QGIS).

RESULTS AND DISCUSSION

In processing data to determine the leading products of each sub-district, this research uses several analytical tools such as Location quotient (LQ), Dynamic location quotient (DLQ), Shift-share Analysis (SSA), Growth Ratio Model (MRP), Klassen Typology, Contribution Analysis and Overlay Analysis. After the leading products in each sub-district are identified, the next step is to conduct geographic information system-based mapping. The following are the results of the mapping and explanation of leading products in each sub-district

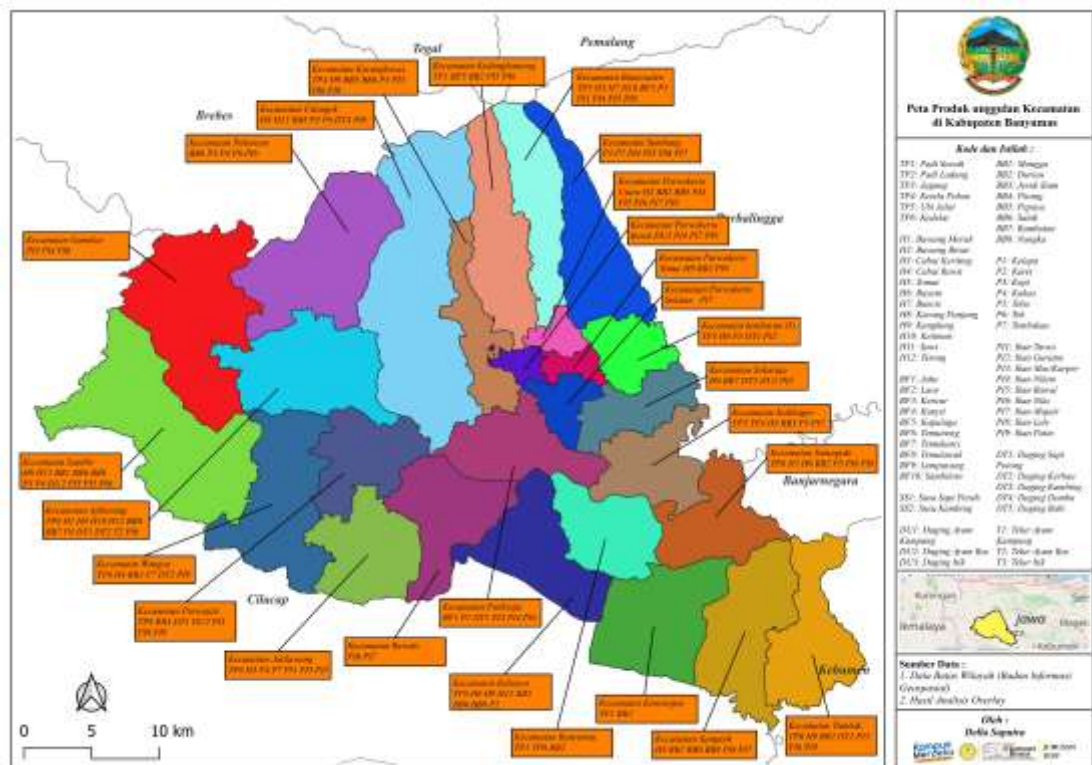
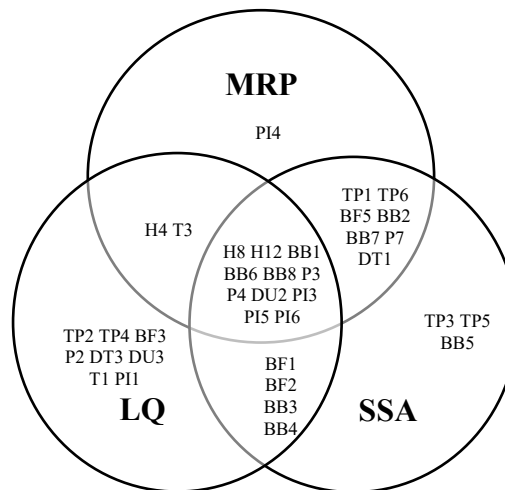


Figure 1. Map of sub-district leading product

Lumbir sub-district's leading products



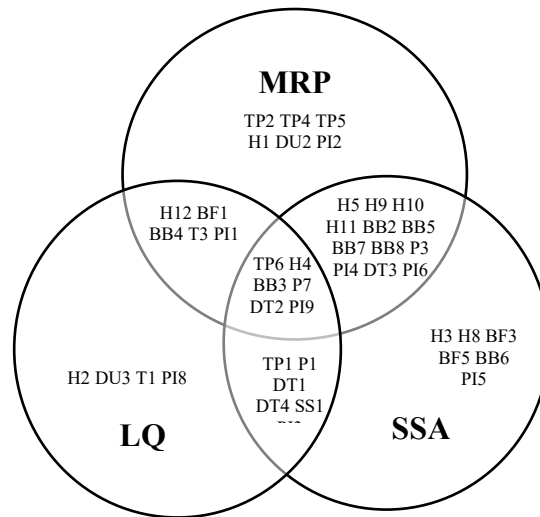
In this sub-district, long beans have a contribution that shows a positive trend with an average of 7% and is in quadrant II of Klassen's typology. In the eggplant crop, the average contribution given is 9% and shows an increase in each year. The estimated Klassen typology of this product is in quadrant I or advanced and fast-growing products.

Meanwhile, in the fruit subsector, mango production in Sub-district Lumbir shows a contribution of 8.16% and is in quadrant II or advanced but depressed products. The production of snakefruit in Sub-district Lumbir contributed 22.06% to the total production in Banyumas Regency. The results of the class typology estimation of snakefruit production also show quadrant I or advanced and fast-growing products. Meanwhile, jackfruit production shows a contribution of 17.15% and is in quadrant I or advanced and fast-growing products.

In the analysis of the plantation subsector, coffee shows a stable contribution of 3.08% and is in quadrant I or advanced and fast-growing products. Furthermore, cocoa shows a contribution of 12.42% and is in quadrant III or fast growing products. Coffee, which is the leading product of Lumbir Subdistrict, is in line with its determination as the leading product of Banyumas Regency as stipulated in Regent Regulation Number 13 of 2024.

The findings in the livestock subsector are in line with Khasanah (2018), which mentions broilers as the leading product in Banyumas Regency. However, this is different from Bambang (2016), which shows the potential in this sub-district in the form of cows, goats and manila ducks. This is due to differences in data analysis techniques used and the use of different years of data. The results of the analysis show that broiler meat production has an increasing contribution every year even though it is below 1%. In the estimation results of Klassen typology, broiler production is in quadrant I or advanced and fast-growing products. Furthermore, the production of carp/goldfish, pomfret and nile tilapia in Lumbir Sub-district shows a contribution of 1.35%, 3.61% and 0.38% respectively.

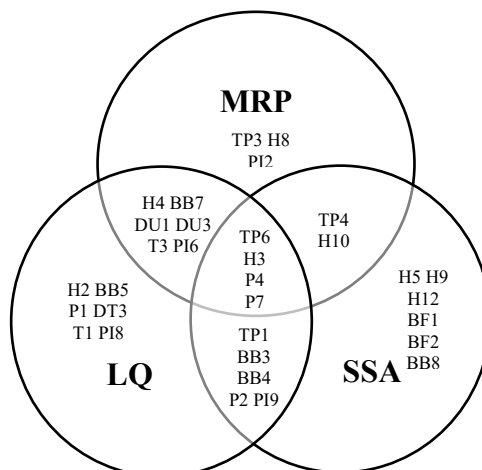
Wangon sub-district's leading products



In soybean crops, this sub-district provides an average contribution of 3.29% and is in quadrant I or advanced and fast-growing products. Cayenne pepper production in Wangon Subdistrict provides an average contribution of 4.1% and is in quadrant III. Then the chayote crop in Wangon Sub-district contributes 5.28% and is in quadrant I or advanced and fast-growing products. In the tobacco crop, Wangon Sub-district contributes 21.88% and is in quadrant I or an advanced and fast-growing product.

The findings in the livestock subsector differ from research Bambang (2016) which mentions common cattle, goats, native chickens, ducks, and manila ducks. The difference in results is due to the use of different analytical tools and data. In buffalo meat production, Wangon sub-district contributes an increasing amount each year and has an average of 14.94%. Then in the Klassen typology estimation, buffalo meat is in quadrant III or a fast growing product. Furthermore, in the fisheries subsector, Wangon Sub-district has a leading product in the form of catfish. Wangon sub-district contributes an average of 23.72% of the total catfish production in Banyumas Regency. Based on the estimation results of the Klassen typology of catfish, Wangon Sub-district is in quadrant III or a fast-growing product.

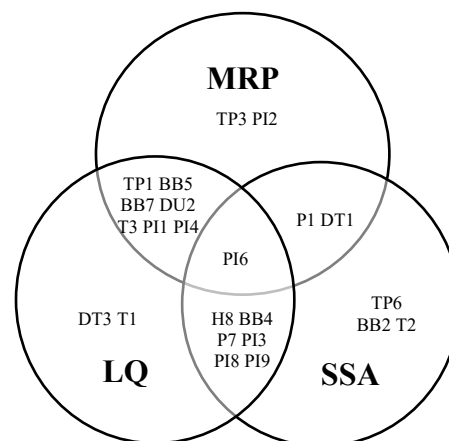
Jatilawang sub-district's leading products



Soybean production in Jatilawang sub-district contributed 15.98% and was in quadrant III or a fast growing product. In curly chili, the contribution given was 2.51%. However, soybean production in this sub-district is in quadrant IV or relatively underdeveloped. In the plantation subsector, Jatilawang sub-district has leading products in the form of cocoa and tobacco. As for Jatilawang Sub-district, cocoa contributed 5.01% and was in quadrant I. While tobacco contributed 14.14% and was in quadrant I. While tobacco contributes 14.96% and is in quadrant I or advanced and fast growing products.

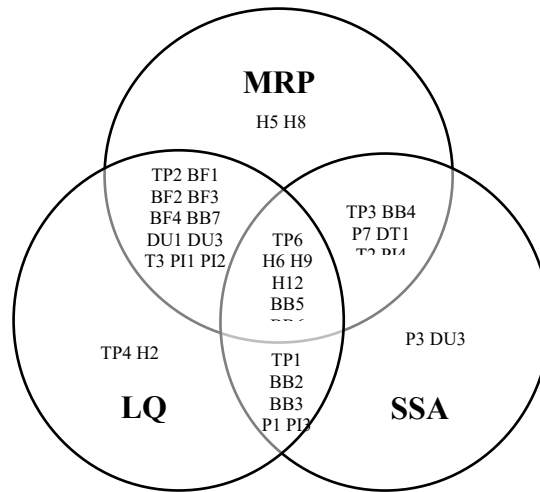
The findings in the fisheries subsector are not in line with Bambang (2016), who identified potential in this Sub-district in the form of common cattle, goats, native chickens, ducks, and manila ducks. This is due to the use of different analytical tools and different years of data. In this sub-district, tawes fish production contributes an increasing contribution every year and the results of the Klassen typology estimation show quadrant I or advanced and fast growing products. Then carp/masprovides an average contribution of 2.93% and is in quadrant I. Meanwhile, pomfret fish in Jatilawang sub-district contributed 15.32% and was in quadrant I or advanced and fast-growing products.

Rawalo sub-district's leading products



Based on the results of the overlay analysis, Sub-district Rawalo has leading products only in the fisheries sector, namely nile tilapia and tilapia. However, this finding is not in line with Bambang (2016) who mentioned common cattle, goats, sheep, native chickens, ducks, and manila ducks as potential in Sub-district Rawalo. This is due to the use of different analytical tools and different years of data. The results of the contribution analysis in this sub-district show that tilapia contributes a relatively stable contribution and has an average of 1.52%. Furthermore, nile tilapia in Rawalo District is in quadrant III or a fast growing product. Meanwhile, tilapia in Sub-district Rawalo contributes 2.86% but is in quadrant IV or relatively lagging behind.

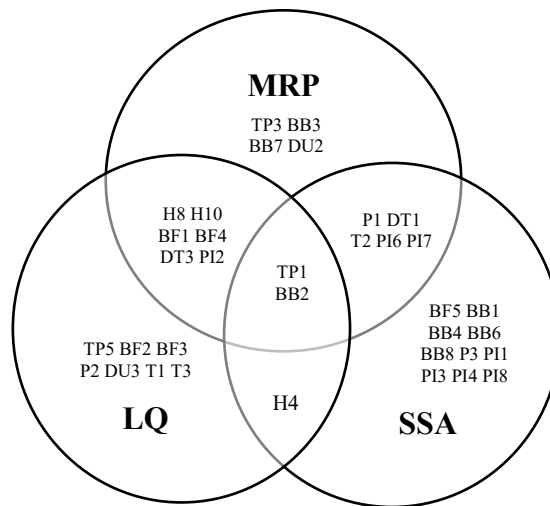
Kebasen sub-district's leading products



The findings of the food crop subsector are in line with Destiningsih, (2016) who identified soybean as an advanced and fast-growing product in Kebasen Sub-district. The results of the soybean contribution analysis show an average contribution of 26.24% and are in quadrant III of fast-growing products. In spinach crops, Kebasen District shows an average contribution of 43.78% and is in quadrant III. Then in the analysis of the contribution of kale plants, Kebasen Sub-district contributed an average of 36.57% and was in quadrant I or advanced and fast-growing products. Furthermore, in the analysis of the contribution of eggplant crops, Kebasen sub-district contributed 15.7% and is in quadrant III.

Based on the results of the analysis, papaya production in Kebasen sub-district contributes 15% and is located in quadrant I. Then in snakefruit fruit, Kebasen Sub-district contributed 19.39% and is in quadrant I. In the results of the jackfruit contribution analysis, Sub-district Kebasen contributed 18.82% and is located in quadrant I. In the plantation sector, Kebasen Sub-district contributed 12.42% to rubber production and is located in quadrant I or advanced and fast-growing products.

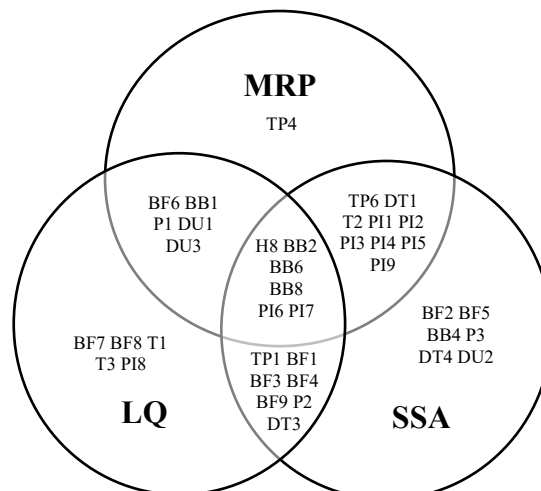
Kemranjen sub-district's leading products



The findings in the food crop subsector are not in line with the research of Saraswati et al. (2006) and Destiningsih (2016), which mention paddy rice as a leading product in other sub-districts. This is due to the different years of data used. When viewed in terms of the contribution of paddy rice in Kemranjen Sub-district, it has an increasing contribution each year and has an average of 5.84%. With this average, Kemranjen Sub-district is ranked third in the production of paddy rice in Banyumas Regency in 2021-2023. Then from the results of Klassen's typology, paddy rice in Kemranjen Sub-district is in quadrant I or can be said to be a developed and fast-growing product.

The production of durian in Kemranjen Sub-district showed a large contribution to durian production in Banyumas Regency with an average contribution of 24.16%. By contributing a quarter of the durian production in Banyumas Regency, Kemranjen District is in quadrant I of the Klassen typology or is a developed and fast-growing product.

Sumpiuh sub-district's leading products

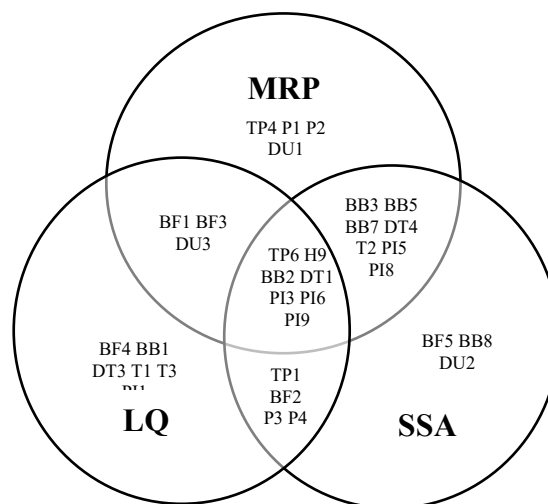


Based on the results of the analysis, the production of long beans in Sumpiuh Subdistrict contributes fluctuate with an average of 4.43% of the total production in Banyumas Regency. The estimation results of the Klassen typology show that the production of long beans in this sub-district is in quadrant I or advanced and fast-growing products.

Durian production in Sumpiuh Sub-district provides an average contribution of 14.22% and is in quadrant I or advanced and fast-growing products. This finding is in line with the determination of durian as a leading product in Banyumas Regency as stipulated in Regent Regulation Number 13 of 2024. This is also in accordance with Paramartha et al. (2017) who identified durian as a leading product in Buleleng Regency. Meanwhile, other findings in the fruit subsector are in line with Mardial et al. (2020) who identified durian, snakefruit and jackfruit as base products in Poso District. The results of the analysis show that the production of snakefruit in this sub-district has decreased in contribution and gives an average contribution of 22.03%. The results of the Klassen typology estimation of snakefruit production in this sub-district are in quadrant I or a developed and fast-growing product. Then in snakefruit products, this sub-district provides an average contribution of 22.3% and the Klassen typology estimation results are in quadrant I or advanced and fast-growing products. In jackfruit production, Sumpiuh sub-district gives an average contribution of 20.1% and is in quadrant I of Klassen's typology or an advanced and fast-growing product.

In Nile tilapia production, Sumpiuh Sub-district contributes 15.46% and is in quadrant I of Klassen's typology or a developed and fast-growing product. Meanwhile, tilapia production in Sumpiuh Sub-district contributes a stable amount each year with an average of 10.51% and is in quadrant III of Klassen's typology or a fast-growing product.

Tambak sub-district's leading products

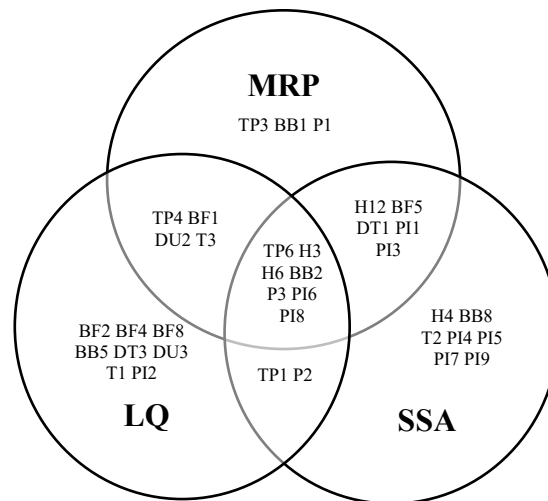


In soybean production, Tambak sub-district contributes fluctuate with an average of 7.14% each year. Klassen's typology shows that soybean production in Tambak sub-district is in quadrant III or included in fast-growing products. This is in line with Destiningsih (2016) who identified soybeans as a leading product in Tambak sub-district. As for the production of water spinach, Tambak Sub-district contributes an increasing contribution every year with an average of 31.21% each year. The production of this crop in Tambak Subdistrict is also in quadrant I of Klassen's typology or included in advanced and fast-growing products. Furthermore, durian production in this sub-district shows an average contribution of 10.66% and is in quadrant III. The existence of durian as a leading product in this sub-district is in line with the determination of durian as a leading product of Banyumas Regency as stipulated in Regent Regulation Number 13 of 2024.

In the livestock subsector, the findings in this study are in line with Bambang (2016) who identified cattle as a potential in this sub-district. Beef production in Tambak sub-district shows a contribution of less than one percent but shows an increase every year. Meanwhile, the typology Klassen estimation shows that beef production in this sub-district is in quadrant III. In carp production, Tambak sub-district shows an increasing contribution with an average contribution of

1.72% per year and is in quadrant I of the class typology. In tilapia production, Tambak sub-district shows an increasing contribution each year and is located in quadrant I. The production of catfish shows an average contribution of 12% each year and is in quadrant III of Klassen's typology.

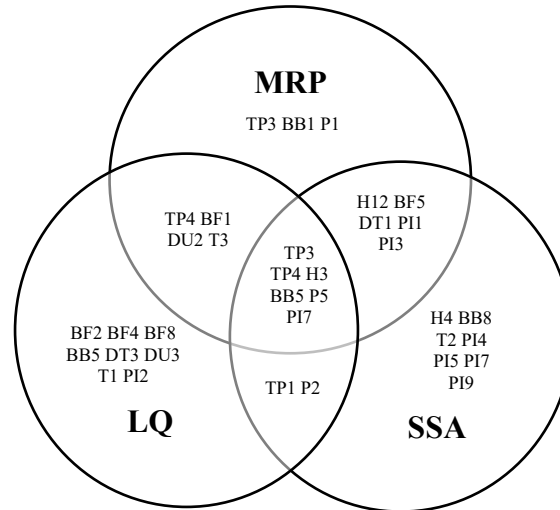
Somagede sub-district's leading products



The soybean production in Somagede sub-district shows an average contribution of 4.84% and is in the third quota or a fast growing product. Curly chili production in Somagede Sub-district shows a fluctuating contribution with an average contribution of 2.87% each year. Meanwhile, the results of the estimation of the class typology of curly chili in this sub-district are in quantum III. This finding is in line with Paramartha et al. (2017) who mentioned chili as the leading hortikultura product in Buleleng Regency. Then spinach production in Somagede sub-district shows an average contribution of 28.63% and is in the third level of Klassen typology. This is in line with Mardial et al. (2020) who mentioned spinach as a basic product in Poso Regency.

Based on the contribution analysis, durian production in Somagede sub-district contributes 9.21% annually and is in quadrant I of Klassen's typology or included in advanced and fast-growing products. Meanwhile, coffee production in this sub-district shows an average contribution of 5.52% and is in quadrant III of Klassen's typology. This finding is in line with the determination of durian and coffee as leading products in Banyumas Regency as stipulated in Regent Regulation Number 13 of 2024. Furthermore, in the fisheries subsector, Sub-district Somagede has leading products in the form of tilapia and catfish. Tilapia production in this sub-district shows an average contribution of 6.35% per year and is in quadrant I of the Klassen typology. The production of catfish in Somagede sub-district provides an average contribution of 8.4% per year and is in quadrant I or included in advanced and fast-growing products.

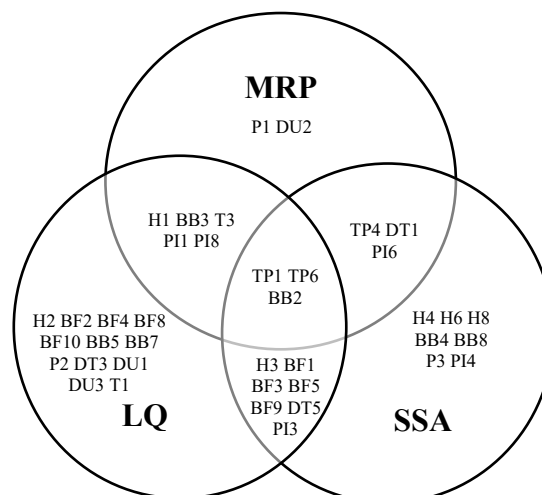
Kalibagor sub-district's leading products



In the leading products of the food crop subsector, Kalibagor Sub-district contributes 6.45% of corn production and 7.74% of cassava production. Meanwhile, the Klassen typology estimation results show that in Kalibagor Sub-district the production of corn and cassava is in quadrant I or included in the advanced and fast-growing product category. This is in line with Saraswati et al. (2006) who identified maize as the leading product in Kalibagor Subdistrict. Then in the horticulture subsector, the findings of this study are in line with Paramartha et al. (2017) who identified chili and papaya as leading products in Buleleng Regency. As for the production of curly chili, Kalibagor sub-district contributes an average contribution of 12.68% each year and is in quadrant I of Klassen typology. As for papaya production in this sub-district, it contributes an average of 12.97% annually and is in quadrant I of Klassen typology.

Sugarcane production in Kalibagor sub-district contributes 100% of sugarcane production in Banyumas district in 2021 and 2023. The Klassen typology estimation results show that sugarcane production in this sub-district is in quadrant III or a fast-growing product. The leading product in the fisheries subsector in Kalibagor sub-district shows that the contribution of tilapia production is stable at around 2%. The results of the Klassen typology estimation show that tilapia is in quadrant III or a fast-growing product.

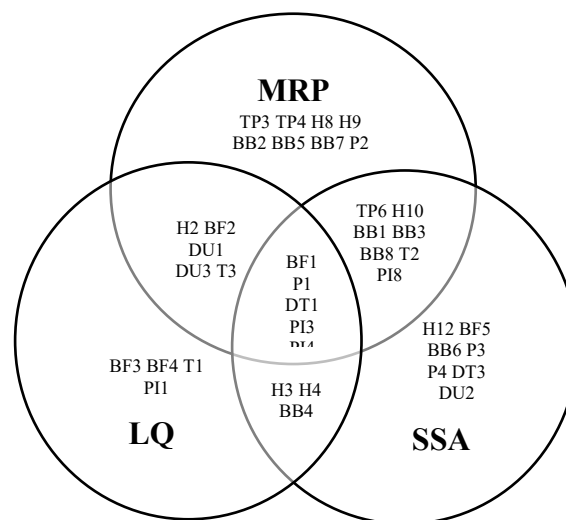
Banyumas sub-district's leading products



The leading products of Banyumas Sub-district in the food crop subsector are paddy rice and soybean. This is in line with Bambang (2016) who identified rice as a potential in Banyumas Sub-district. Destiningsih (2016) also mentions rice paddies and soybeans as the leading products in Banyumas Sub-district. In the production of paddy rice, Banyumas Sub-district contributes an average contribution of 1.74% and the results of the Klassen typology estimation are in quadrant I. Meanwhile, soybean production in this sub-district contributes an average contribution of 1.74%. Soybean production in this sub-district contributes an average contribution of 10.91% per year and is in quadrant I or advanced and fast-growing products.

Banyumas Sub-district has a leading product in the form of durian with an average contribution of 4.87% and is in quadrant I of Klassen's typology or is included in the category of advanced and fast-growing products. This finding is in line with the determination of durian as a leading product in Banyumas Regency as stipulated in Regent Regulation Number 13 of 2024.

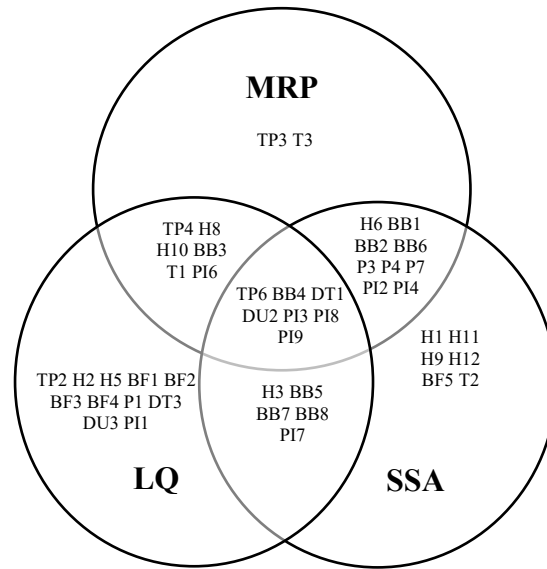
Patikraja sub-district's leading products



In ginger production, Patikraja Sub-district provides an average contribution of 5.58% and is in quadrant I of the Klassen typology. This is in line with Heldayani et al. (2022) who identified ginger as a leading product of the biopharmaca subsector in several sub-districts in Muara Enim Regency. Then in the livestock meat subsector, the findings of this study are in line with Bambang (2016) who identified cattle as the leading product in this sub-district. Beef production in Patikraja Sub-district contributes less than one percent but increases every year. The estimation results of the Klassen typology of beef production show that Patikraja Subdistrict is in quadrant I or included in advanced and fast-growing products.

Based on the results of the analysis, Patikraja Sub-district contributed an average of 5.11% to the production of carp/mas, 4.33% to the production of nilem and 1.88% to the production of tilapia. Meanwhile, the results of the Klassen typology estimation show that in Patikraja Sub-district the production of carp/goldfish, nilem fish and tilapia is in quadrant I or included in advanced and fast-growing products.

Purwojati sub-district's leading products

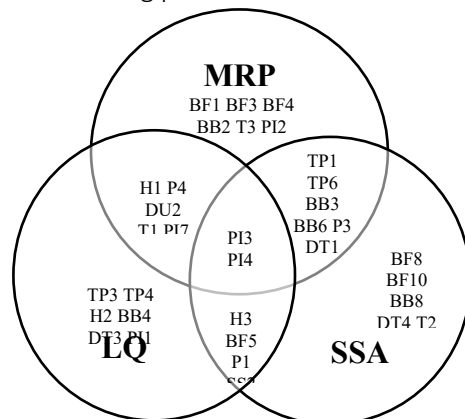


In soybean production, Purwojati Sub-district contributes a fluctuating contribution with an average of 9.68% and is in quadrant II of the Klassen typology. The production of bananas in Purwojati Sub-district contributes to the increase each year and shows an average of 3.94%. The estimation results of Klassen typology on banana production in Purwojati Sub-district are in quadrant I or included in advanced and fast-growing products.

Beef production in Purwojati Subdistrict shows a contribution of less than one percent but increases every year. The Klassen typology estimation results on beef production are in quadrant III or including fast growing products. This is in line with Bambang, (2016) who called cattle a leading product in Purwojati Subdistrict. The contribution of broiler meat in Purwojati Sub-district shows an increase every year and is in quadrant I or included in advanced and fast-growing products.

Based on the results of the analysis, Purwojati Sub-district contributed an average of 2.23% to the production of carp/mas, 1.55% to the production of catfish and 3.47% to the production of catfish. The results of the Klassen typology estimation show that in Purwojati Subdistrict, the production of carp/mas and catfish are in quadrant I or including advanced and fast-growing products. Meanwhile, catfish production in Purwojati Subdistrict is in quadrant III or included in fast-growing products.

Gumelar sub-district's leading products

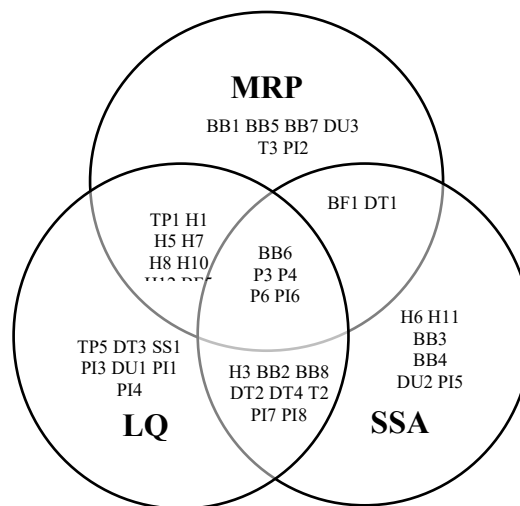


This finding is in line with Rokhmawati and Sardjito (2020) who identified carp and tilapia as leading products in Lamongan Regency. Based on the results of the analysis, the production of

carp/masin this sub-district shows a fluctuating condition with an average contribution of 0.8% and is in the first quarter of Klassen's typology. Meanwhile, nile fish production shows an average contribution of 0.58% and is in quadrant I of Klassen's typology.

Furthermore, Nile tilapia production in this sub-district contributes 1.06% in 2021, 0.97% in 2022 and 0.95% in 2023. The contribution rate for Nile tilapia production in Gumelar Sub-district has decreased every year and has an average contribution of 0.99%. Meanwhile, the results of the Klassen typology estimation show that tilapia production in this sub-district is in quadrant III or is included in fast-growing products.

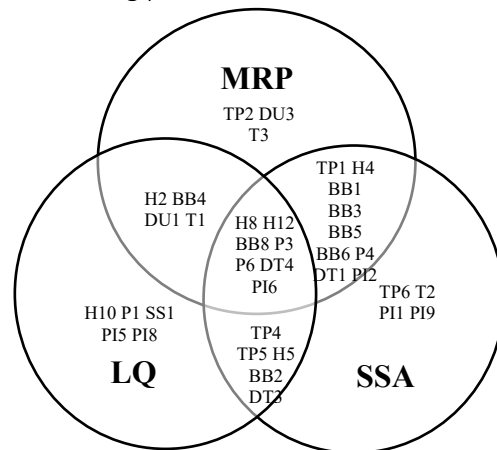
Pekuncen sub-district's leading products



The findings in the fruit sub-sector are in line with Mardial et al., (2020) who mentioned snake fruit as a basic product in Poso Regency. The production of snake fruit in this district shows an average contribution of 2.45% and is in quadrant I of the Klassen typology. The finding of coffee as a leading product in this district is in line with its determination as a leading product in Banyumas Regency based on Regent Regulation Number 13 of 2024.

Meanwhile, in cocoa production in Pekuncen Sub-district, the contribution given increases every year and has an average of 11.09%. Cocoa production in this district is in quadrant I of the Klassen typology or is an advanced and fast-growing product. This is in line with Charles et al., (2018) who identified cocoa as a leading product in Landak Regency. Meanwhile, tea production in Pekuncen Sub-district shows an average contribution of 61.11% and is in quadrant III or a fast-growing product. Meanwhile, the leading products in the fisheries sub-sector show that Pekuncen Sub-district has an increasing contribution every year and has an average of 3.59%. The results of the Klassen typology estimation show that tilapia production in Pekuncen Sub-district is in quadrant I or is included in advanced and fast-growing products.

Cilongok sub-district's leading products

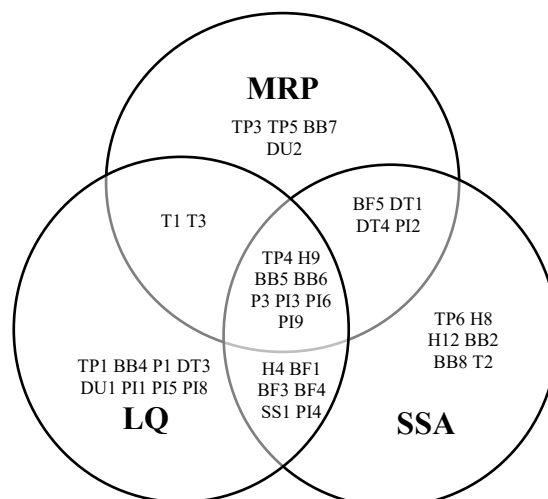


In the superior horticultural crop products, the findings of this study are not in line with Bambang (2016) who mentioned paddy and cassava as leading products in the agricultural sector. This is due to differences in analysis tools and data from different years. Based on the results of the analysis, Cilongok Sub-district provides an increasing contribution each year and contributes an average of 20.26% to long bean production and 21.5% to eggplant production. These two leading products are in quadrant I of the Klassen typology or are included in advanced and fast-growing products.

Jackfruit production in Cilongok Sub-district shows an average contribution of 3.24% and is in quadrant I of the Klassen typology. As for the leading products of the plantation sub-sector, Cilongok Sub-district provides an average contribution of 18.53% to coffee production and 30.12% to tea production. The results of the Klassen typology estimation show that coffee production in this district is in quadrant III or a rapidly developing product and tea production is in quadrant I. This finding is in line with the determination of coffee as a leading product in Banyumas Regency as stated in Regent Regulation Number 13 of 2024.

Lamb meat production in Cilongok Sub-district shows an average of 36.82% and is in quadrant I. This finding is not in line with Bambang (2016) who mentions ordinary cattle, goats, free-range chickens, and ducks as leading products in Cilongok District. This is due to differences in the analysis tools used. Meanwhile, tilapia production in this district shows an average contribution of 8.61% and is in quadrant I or is included in advanced and rapidly growing products.

Karanglewas sub-district's leading products

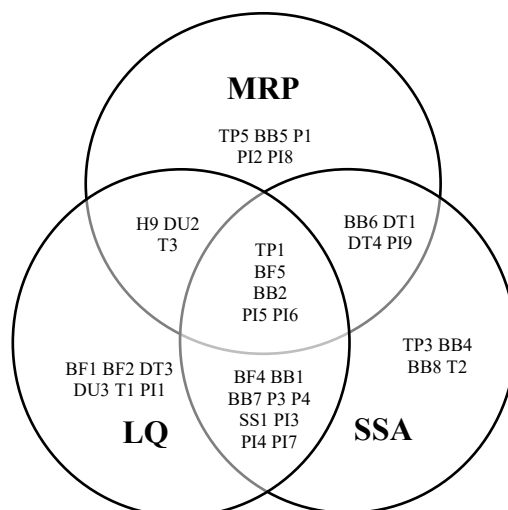


The findings in the food crop sub-sector are not in line with Destiningsih (2016) who did not identify cassava as a leading product in this district. This is due to differences in the analysis tools used and different years of data. Meanwhile, Karanglewes Sub-district shows an increasing contribution every year with an average contribution of 5.65% and is in quadrant I of the Klassen typology.

Water spinach production in Karanglewes Sub-district shows an average contribution of 11.71% and is in quadrant I of the Klassen typology. This finding is in line with Setiani et al., (2021) who identified water spinach as a leading product in Tasikmalaya Regency. Then in the fruit sub-sector, the findings of this study are in line with Mardial et al., (2020) who identified papaya and snakefruit as leading products in Poso Regency. Meanwhile, papaya production in this district shows an average contribution of 10.99% and is in quadrant I of the Klassen typology. In the production of snakefruit fruit, Karanglewes Sub-district provides an average contribution of 13.77% and is in quadrant III of the Klassen typology or is included in fast-growing products. Meanwhile, coffee production in this district shows an increase every year and is in quadrant I of the Klassen typology. This is in accordance with its determination as a leading product of Banyumas Regency in accordance with Regent Regulation Number 13 of 2024.

In the leading products of the fisheries sub-sector, Karanglewes Sub-district shows a contribution to the production of carp/mas which increases every year and provides an average contribution of 4.59%. Meanwhile, for the production of tilapia and pangas catfish, each provides an average contribution of 3.28% and 3.81%. Then based on the results of the Klassen typology estimation, carp and tilapia are in quadrant I or are included in advanced and fast-growing products. Meanwhile, pangas catfish production in this district is in quadrant III or is included in advanced and fast-growing products.

Kedungbanteng sub-district's leading products

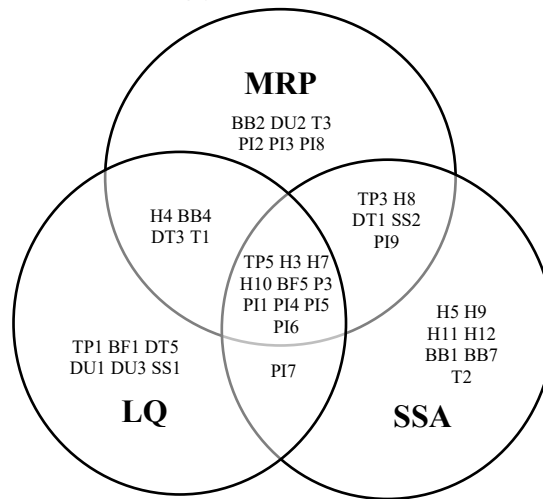


Based on the results of the analysis, paddy field production in this district shows an increasing contribution each year with an average of 4.32%. The results of the Klassen typology estimation show that paddy field production in this district is in quadrant III. Then cardamom production in Kedungbanteng Sub-district shows an average contribution of 7.42% and is in quadrant I.

Meanwhile, durian production in Kedungbanteng Sub-district contributed an average contribution of 12.41% and was in quadrant III of the Klassen typology. This is in line with the determination of durian as a leading product in Banyumas Regency based on Regent Regulation Number 13 of 2024. Meanwhile, the leading products of the fisheries sub-sector in Kedungbanteng Sub-district contributed an average contribution of 8.81% to pomfret fish production and 9.95% to

tilapia fish production. The results of the Klassen typology estimation show that these two leading products are in quadrant I or are included in advanced and fast-growing products.

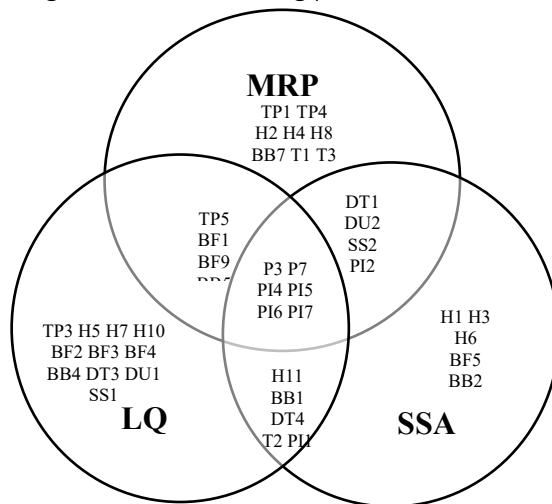
Baturraden sub-district's leading products



Based on the results of the analysis, sweet potato production, Baturraden District provides an average contribution of 3.39% and is in quadrant III. The production of curly chilies in Baturraden District shows an average contribution of 18.41% and is in quadrant III of the Klassen typology. Then the production of green beans in this district shows an increasing contribution each year and shows an average contribution of 5.47% and is in quadrant I of the Klassen typology. As for cucumber production, Baturraden District contributes an average contribution of 5.5% and is in quadrant I of the Klassen typology. Cardamom production in this district contributes 1.02% and is in quadrant I of the Klassen typology.

Furthermore, in coffee production, Baturraden District contributed 8.9% and was in quadrant III of the Klassen typology. This is in accordance with its determination as a leading product in Banyumas Regency as stated in Regent Regulation Number 13 of 2024 of the Banyumas Regency Government. Based on the results of the analysis, the leading products of the fisheries sub-sector in Baturraden District contributed an increasing amount each year to tawes fish production with an average contribution of 6.79%. The results of the Klassen typology estimation show that tawes fish production in Baturraden District is in quadrant I or is classified as an advanced and fast-growing product. Meanwhile, the production of nilen, pomfret, and tilapia in Baturraden District gave an average contribution of 14.96%, 5.45% and 4.73% respectively. The three fish productions in Baturraden District are in quadrant I of the Klassen typology or are classified as advanced and fast-growing products.

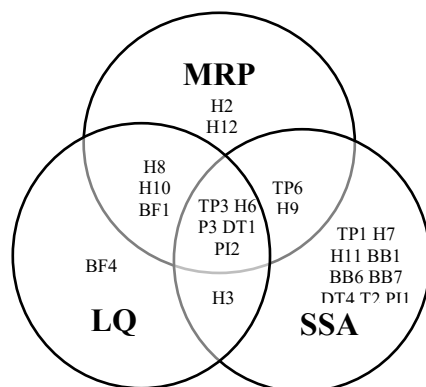
Sumbang sub-district's leading products



The identification of coffee as a leading product in Sumbang Sub-district is in line with its determination as a leading product in Banyumas Regency based on Regent Regulation Number 13 of 2024 of the Banyumas Regency Government. Based on the results of the analysis, coffee production in Sumbang Sub-district shows a stable contribution with an average of 8.58% and is in quadrant III of the Klassen typology or is included in rapidly developing products. Then tobacco production in Sumbang Sub-district shows a fluctuating contribution with an average contribution of 1.93% and is in quadrant I of the Klassen typology.

In the leading products of the fisheries sub-sector, Sumbang Sub-district provides an average contribution of 3.93% (nilem fish), 1.87% (pomfret), 2.02% (nile tilapia) and 6.94% (tilapia). Meanwhile, the results of the Klassen typology estimation show that nilem fish and pomfret are in quadrant I or are included in advanced and fast-growing products. Meanwhile, tilapia and tilapia are in quadrant III or fast-growing products.

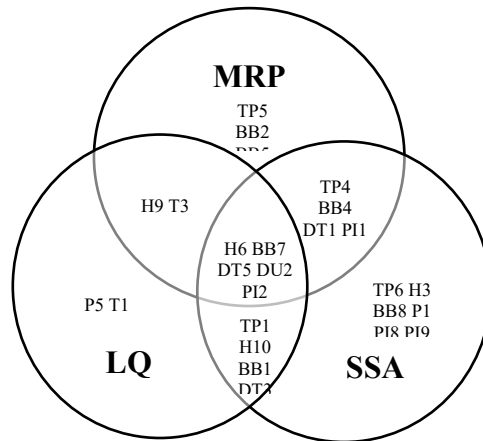
Kembaran sub-district's leading products



Based on the contribution analysis, corn production in Kembaran Sub-district shows an average of 30.63% and is in quadrant I or is included in advanced and fast-growing products. Then spinach production in this district provides an average contribution of 8.01% and is in quadrant I of the Klassen typology. Coffee production in this sub-district contributes 1.12% and is in quadrant I of the Klassen typology. This is in line with the determination of coffee as a leading product in Banyumas Regency as stated in Regent Regulation Number 13 of 2024 of the Banyumas Regency Government. Meanwhile, the findings in the livestock meat sub-sector are in line with Bambang (2016) who mentioned beef as a leading product in this sub-district. In the livestock meat sub-sector, Kembaran Sub-district provides an average contribution of 35.55% and is in quadrant III or is included in rapidly

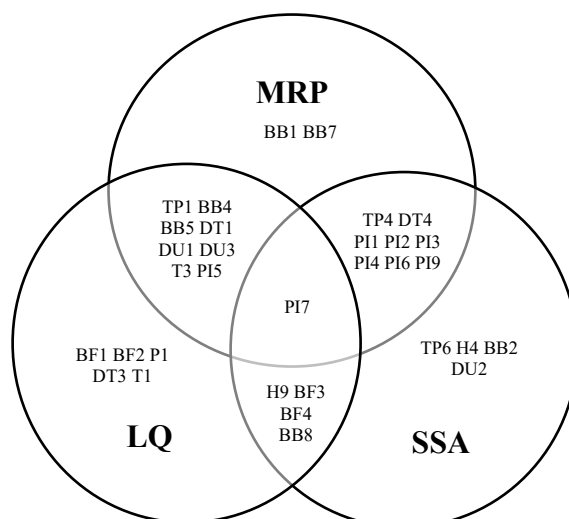
developing products. Meanwhile, carp (gurame fish) production in this sub-district shows an average contribution of 17.83%. The results of the Klassen typology estimation in this sub-district show that gourami fish production is in quadrant II or is included in advanced but depressed products.

Sokaraja sub-district's leading products



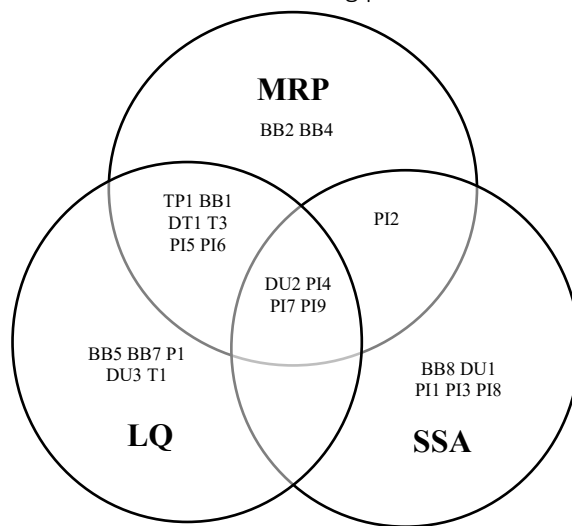
Spinach production in this district increases every year with an average contribution of 17.09% and is in quadrant I of the Klassen typology. Then in Sokaraja Sub-district, rambutan production has an average contribution of 4.44% and is in quadrant I of the Klassen typology or is included in advanced products. In pork production, Sokaraja Sub-district has an average contribution of 17.84% and is in quadrant I. Meanwhile, the findings in the poultry meat sub-sector are not in line with Bambang, (2016) who identified native chicken as a leading product in this district. This is due to differences in the analysis tools used and different data years. The results of the analysis show that broiler chicken production in this district contributes an average contribution of 44.89% and is in quadrant II of the Klassen typology. Meanwhile, in carp (gurame fish) production, Sokaraja Sub-district provides an average contribution of 28.49% and is in quadrant I of the Klassen typology.

Purwokerto Selatan sub-district's leading products

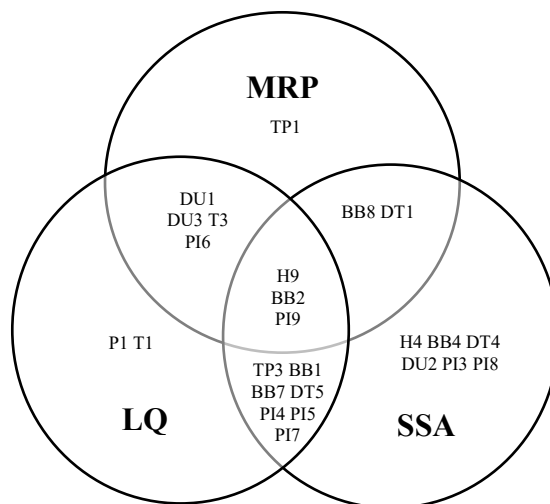


Based on the results of the overlay analysis, South Purwokerto Sub-district only has leading products in the fisheries sub-sector, namely tilapia. This is also supported by the performance of South Purwokerto Sub-district for its contribution to tilapia production which has an average of

19.68%. Meanwhile, the results of the Klassen typology estimation show that tilapia production in this district is in quadrant III or is included in the rapidly developing product. Purwokerto Barat sub-district's leading products



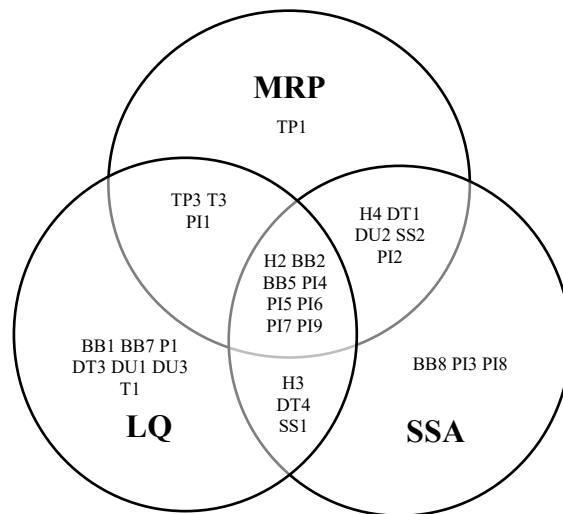
Chicken meat production in West Purwokerto Sub-district shows an average contribution of 0.15% and is in quadrant I of the Klassen typology. This finding is not in accordance with (Bambang, 2016) who did not identify broiler chicken meat as a leading product in this district. This is due to differences in analysis tools and data from different years. Then the leading products of the fisheries sub-sector show an average contribution of this district of 3.68% (nilem fish), 5.53% (tilapia) and 3.59% (pangas catfish). Meanwhile, the results of the Klassen typology estimation show that nilem fish production in West Purwokerto Sub-district is in quadrant I, while tilapia and pangas catfish are in quadrant III or are included in rapidly developing products. Purwokerto Timur sub-district's leading products



Meanwhile, the production of water spinach in East Purwokerto Sub-district shows an average contribution of 1.14% and is in quadrant I of the Klassen typology. Then the production of durian in this sub-district contributes less than one percent and is in quadrant I of the Klassen typology or is included in advanced and fast-growing products. This is in line with the determination of durian as a leading product of Banyumas Regency as stated in the Regent Regulation Number 13 of 2024 of the Banyumas Regency Government. Meanwhile, the production of pangas catfish in this sub-district

shows a contribution of 22.62% in 2023 and is in quadrant III of the Klassen typology or is included in fast-growing products.

Purwokerto Utara sub-district's leading products



The production of large chilies in North Purwokerto Sub-district only contributed 5% in 2023 and was in quadrant I of the Klassen typology. Furthermore, durian production in North Purwokerto Sub-district contributed fluctuatingly with an average of 1.49% and was in quadrant I of the Klassen typology. This is in accordance with the determination of durian as a leading product in Banyumas Regency as stated in Regent Regulation Number 13 of 2024 of the Banyumas Regency Government. Papaya fruit production in this district contributed 1.39% and was in quadrant I of the Klassen typology. This finding is in line with Setiani et al., (2021) who identified papaya as a leading product in Tasikmalaya Regency.

The results of the analysis show that the leading products of the fisheries sub-sector in this sub-district provide an average contribution of 3.47% (nilem fish), 5.49% (pomfret), 3.66% (nile fish), 2.26% (tilapia) and 3.34% (pangas catfish). The results of the Klassen typology estimation show that nilem fish and pomfret are in quadrant I or are included in advanced and fast-growing products. Furthermore, the production of nile tilapia, tilapia and pangas catfish is in quadrant III or a rapidly developing product.

CONCLUSION

Agriculture is one of the sectors in Banyumas Regency that provides a positive growth trend and is always in the top five sectors with the largest contribution. Based on the results of research and data analysis, it was found that the distribution of superior products exists in each sub-district and has a different variety. The Sub-district Leading Product Map can be used as one of the considerations in developing the leading products of Banyumas Regency at the sub-district level.

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