Volume 5 Nomor 1 April 2023

Journal of Public Administration and Government

journal homepage : : https://jurnal.fisip.untad.ac.id/index.php/JPAG

Management of Hybrid Corn Technology Application in Gorontalo

Husin Tabrani*; Kaimuddin, Syatrianty Andi Saiful

Graduate School Agricultural Systems, Universitas Hasanuddin, Makassar, Indonesia

INFO ARTICLE

* Corresponding author;
chenaja832@gmail.com

Keywords:
agriculture;
coconut stands;
corn;
intercropping;
organic fertilizer.

ABSTRACT

The study's purpose was to assess hybrid maize varieties' tolerance to shade as well as their reaction to fertilization. From August 2021 to November 2021, the research was conducted in Molowahu village, Tibawa sub-district, Gorontalo regency, Gorontalo province. The first element in this study was hybrid maize varieties consisting of three levels, namely Nasa-29, JH-29, and Bisi-18, and the second factor was environmental design (RAK). The usage of fertilizers, namely NPK Phonska 300 kg/ha + Urea 200 kg/ha, manure 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha, and manure 2 tons/ha, is the second factor. The findings of this study revealed that the Nasa-29 variety had the best amount of shade tolerance, as evidenced by the maximum yield of 6.77 tons/ha. A fertilizer package of 1 ton/ha manure + Phonska NPK 150 kg/ha + Urea 100 kg/ha can boost and optimize the development and output of maize plants in the shade between coconut plants by 0.44 tons/ha, with no interaction between variety treatment and the fertilization package.

Volume 5 Nomor 1 April 2023

Journal of Public Administration and Government

journal homepage : : https://jurnal.fisip.untad.ac.id/index.php/JPAG

INTRODUCTION

The agriculture sector's function is becoming increasingly crucial since it can generate a significant amount of foreign exchange and is the only economic sector that can survive in the middle of an economic crisis (Agricultural Research and Development). Regional autonomy requires areas to be self-sufficient in using regional potential, allowing the agriculture sector to make a substantial contribution to the regional economy and increase community welfare (Putra & Marzaman, 2019).

Corn is a type of food crop that is potential and strategic for supporting food security and is ideal for growth beneath coconut stands. Corn planting in coconut plantations can improve the coconut cropping system while increasing land use efficiency and providing additional revenue to farmers. Approximately 80% of the land beneath coconut trees is suitable for intercropping (Aji et al., 2021). The utilization of land under annual crop stands through a cropping system (polyculture) can improve land use efficiency. Essentially, the cropping system application seeks to maximize efficiency and land yields, with the goal of boosting farmers' revenue.

Corn is the second most significant commodity after rice in terms of food and feed (Sari et al., 2020). Commodities with a different name Zea mays is a food source for the Indonesian population, which has expanded to numerous places (Irawan et al., 2019). Corn offers several benefits. Aside from being a daily requirement for the community, it may also be processed into a variety of goods such as corn stalks, corn oil, corn flour, chicken feed, fish feed, and other food functions. Furthermore, maize kernels may be processed into a variety of goods, corn dregs into ruminant animal feed, corn dregs into organic fertilizer, corn cobs into charcoal, and corn husks into flowers, lunkhead, basic components for garments, tablecloths, and some unique items (Hasan et al., 2021).

Gorontalo is one of Indonesia's most important corn-producing provinces. Production of gorontalo corn has been sold to a number of nations, including the Philippines, Malaysia, and South Korea (Kumaji & Katili, 2019). Corn crop commodity is a very prospective and strategic commodity in Gorontalo Province, where practically all agricultural villages know and cultivate corn. Corn has been a staple diet for Gorontalo people from the beginning of time (Dunggio & Darman, 2020).

Corn from Gorontalo Province has the potential to enter the international corn market, not only for food but also as a raw material for animal feed (Ashari, 2020). Increased market demand and high pricing might encourage farmers to cultivate this crop (Lahan et al., 2021). Corn output has increased dramatically year after year since the Agropolitan initiative promoted corn planting in Gorontalo Province. Corn output in Gorontalo Province exhibited minor changes but remained favorable throughout the previous six years, from 2012 to 2017. Corn production grew to 1,552,000 tons in 2017 (Kango, 2019). According to the most recent statistics, corn output in Gorontalo Province in 2020 was 643,512 tons, with 129,131 hectares under cultivation (Hunowu et al., 2022).

Aside from having significant potential, the maize commodities opportunity is also appropriate for development on dry terrain (Hunowu et al., 2021). Indonesia's dry land potential is rather significant, but it still need more attention for development (Hipi et al., 2019). The appropriate strategy to cultivate these crops in standing regions is to pick maize types that are light tolerant. Purnomo's (2005) research found that Pioner 11 maize varieties might yield up to 3.9 t/ha with shading levels of up to 60%.

The researcher's cropping system is a planting system with inserts or companion plants. Insertional plants are cropping systems for plants that grow many types of plants at the same or different periods on the same area. Corn plants serve as companion plants or insert plants, while coconut plants serve as the primary plant. If done correctly and responsibly, the coconut tree polyculture planting pattern is more lucrative than the monoculture method. Higher land productivity, a variety of commodities, increased yields, improved soil fertility, erosion prevention, cost savings on production facilities, and a lower chance of failure are all advantages of coconut tree polyculture (Nur et al., 2018). Thus, a polyculture planting strategy is strongly suggested with the goal of growing maize between coconut trees.

Furthermore, fertilizer use might have an impact on maize output. Fertilization is a process that is essential for plant development and productivity (Rosadi et al., 2019). Fertilization for increased soil fertility

Volume 5 Nomor 1 April 2023

Journal of Public Administration and Government

journal homepage : : https://jurnal.fisip.untad.ac.id/index.php/JPAG

and growth (Mutaqin et al., 2019). Plant fertilization must take into account the soil's nutritional condition as well as the amount of nutrients required by the plants (Rochmah et al., 2020). Nutrients are one of the key variables influencing plant growth and development (Kriswantoro et al., 2016). Fertilization is done because the most prevalent form of agricultural soil among coconut trees is soil that is deficient in nutrients, pH, organic matter, and cation exchange capacity.

Soil fertility may be improved physically, chemically, and biologically by fertilizing with a combination of organic (cow dung) and inorganic materials. The importance of organic matter in enhancing soil physical qualities is frequently illustrated by modifying the amount of soil texture elements. The C/N value and organic matter composition will differ depending on the source of organic matter (Akbar et al., 2019). Solid organic fertilizers are fertilizers that are largely or entirely composed of organic materials generated from plant leftovers, animal waste, and human waste (Berutu et al., 2019). Cow dung manure has cold fertilizer qualities. Cold fertilizer is a gradual decomposition process carried out by microorganisms that does not generate heat, such as cattle and buffalo. This is due to the fact that organic stuff decomposes entirely and does not disintegrate significantly into gas. Cow dung has a high fiber content, such as cellulose, when compared to other forms of manure (Hawayanti et al., 2020).

As a reason, increasing output can only be accomplished by supplying extra plant nutrients for optimal development. This study aims to find the best variety for hybrid maize growth and production under coconut shade, the best fertilizer package for hybrid maize growth and production under coconut shade, and the interaction between maize varieties and the best fertilization package for hybrid maize growth and production. under the shady canopy of a coconut.

METHODS

This was a two-factor factorial study with a randomized block design. The first component was a hybrid corn variety with three levels, namely V1 (Nasa-29), V2 (JH-29), and V3 (Bisi-18). The second factor is the use of fertilizers, specifically P1 (NPK Phonska 300 kg/ha + Urea 200 kg/ha), P2 (Manure 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha), and P3 (Manure 2 tons/ha), for a total of 9 treatment combinations and three replications for each treatment, for a total of 27 experimental units. The implementation of the research began with land preparation starting with land clearing and loosening using a hoe as deep as 15-20 cm. After the soil was treated evenly, experimental plots were made with a size of 3 x 4 m^2, with a distance between plots of 50 cm. According to the treatment, corn seeds were planted with two seeds per hole and a spacing of 30 cm per hole. Before planting, the seeds were mixed with ridomil at a rate of 100 grams per 5 kg of corn seeds.

Fertilization for maize plants was done three times, with the first fertilization consisting of manure used at the time of plot formation, phonska applied when the plants were 0-10 DAP, and urea applied when the plants were 30 DAP. Weeding, hoarding, watering, and pest and disease management are all examples of maintenance. The corn plant was harvested at 115 DAP, which was indicated by the cob hairs being blackish brown, dry, and unable to be parsed, the tip of the cob being fully filled, and the color of the seeds being shiny yellow. Analysis of variance (ANOVA) was used to test observational data, and the results of observations with a significant to very significant effect were further tested using the Tukey's HSD (Tukey's Honestly Significant Difference Test).

Volume 5 Nomor 1 April 2023

Journal of Public Administration and Government

journal homepage : : https://jurnal.fisip.untad.ac.id/index.php/JPAG

RESULTS AND DISCUSSION

Plant Height

The analysis of variance findings revealed that the treatment of numerous varieties, as well as the interaction between the varieties and the fertilizer package, had no significant influence on the height of the corn plant, however the fertilizer package treatment had a highly significant effect.

Table 1. Plant Height (cm)

Varieties	Fertilization Package		
	p1	p2	p3
v1 (Nasa-29)	246.63	237.93	197.37
v2 (HJ-29)	240.53	235.30	216.33
v3 (Bisi 18)	230.20	238.63	188.67
Average	239.12 [a]	237.29 [a]	200.79 [b]
NPp HSD 5%		21.38	

Note: The numbers in column (ab) that are followed by the same letter indicate that there is no significant difference to the 5% HSD test.

Table 1 shows that the fertilizing package treatment of Manure 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha resulted in the highest plant height response of 237.29 cm, which was not significantly different from NPK Phonska 300 kg/ha + Urea 200 kg/ha and significantly different from manure 2 tons/ha.

Rod Diameter

The analysis of variance results revealed that the treatment of several varieties, as well as the interaction between the varieties and the fertilizer package, had no significant effect on the stem diameter of corn plants, whereas the fertilizer package treatment had a very significant effect.

Table 2. Rod Diameter (mm)

Varieties	Fertilization Package		
	p1	p2	p3
v1 (Nasa-29)	21.00	19.93	17.47
v2 (HJ-29)	20.43	19.20	13.00
v3 (Bisi 18)	21.97	18.50	14.37
Average	21.13 [a]	19.21[b]	14.94[c]
NPp HSD 5%		21.38	

Note: The values in the column that are followed by the same letter (abc) indicate that there is no significant difference to the 5% HSD test.

Table 2 reveals that the Phonska NPK fertilization 300 kg/ha + Urea 200 kg/ha treatment package produced the biggest stem diameter response of 21.13 mm and was substantially different from the Manure 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha and Manure 2 tons/ha treatments.

Volume 5 Nomor 1 April 2023

Journal of Public Administration and Government

journal homepage : : https://jurnal.fisip.untad.ac.id/index.php/JPAG

Number of Cob Rows

The examination of diversity fingerprints revealed that variety treatment, fertilizer packages, and interactions between varieties and fertilizer packages had no significant effect on the number of rows of corn plants.

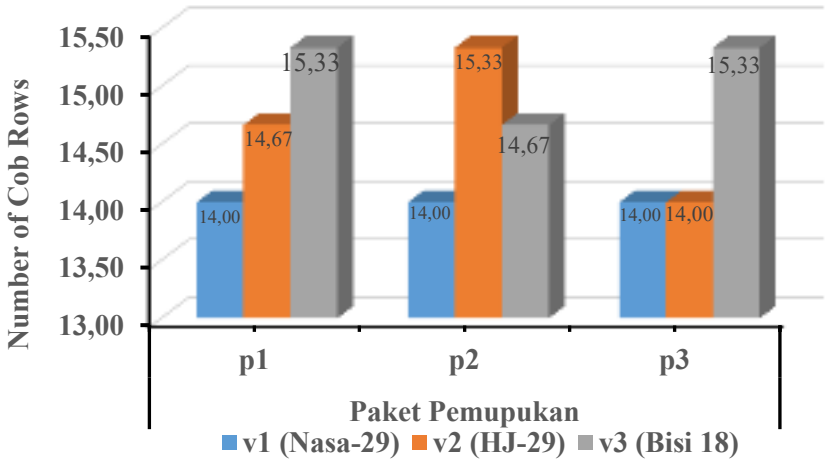

Figure Average observations of the number of rows of cobs treated by several varieties with a fertilizer package under the shade of coconut plants.

The treatment of Bisi-18 variety with NPK Phonska fertilizer package 300 kg/ha + Urea 200 kg/ha and manure 2 tons/ha and HJ-29 variety with Manure 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha delivered the largest number of rows per ear, followed by Nasa-29 variety treatment with 1 ton/ha. Manure + Phonska NPK 150 kg/ha + Urea 100 kg/ha and Bisi-18 variety with 1 ton/ha Manure + Phonska NPK 150 kg/ha + Urea 100 kg/ha

Cob Weight Without Crab

The analysis of diversity fingerprints revealed that the treatment of several varieties, as well as the interaction between the varieties and the fertilizer package, had no significant effect on the weight of the cobs without corn husks, whereas the fertilizer package treatment had a very significant effect.

Table 3. Weight of cobs without shells (g)

Varieties	Fertilization Package		
	p1	p2	p3
v1 (Nasa-29)	229.33	230.83	118.17
v2 (HJ-29)	194.83	211.50	105.10
v3 (Bisi 18)	220.50	208.83	136.00
Average	214.89[a]	217.06[a]	119.76[b]
NPp HSD 5%		22.29	

Note: The numbers in column (ab) that are followed by the same letter indicate that there is no significant difference to the 5% HSD test.

Table 3 shows that the fertilizing package treatment of Manure 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha gave the heaviest response to cob weight without the heaviest pods, which was 217.89 g and was not significantly different from the Phonska NPK treatment of 300 kg/ha + Urea 200 kg/ha.

Volume 5 Nomor 1 April 2023

Journal of Public Administration and Government

journal homepage : : https://jurnal.fisip.untad.ac.id/index.php/JPAG

Corn Shell Weight per Cob

The analysis of variance results revealed that the treatment of several varieties, as well as the interaction between the varieties and the fertilization package, had no significant effect on the weight of shelled corn per corn cob, whereas the fertilization package treatment had a very significant effect.

Table 4. Weight of shelled corn per cob (g)

Varieties	Fertilization Package		
	p1	p2	p3
v1 (Nasa-29)	169.70	184.50	96.03
v2 (HJ-29)	155.90	180.37	80.23
v3 (Bisi 18)	172.40	171.00	112.13
Average	166.00[a]	178.62[a]	96.13[b]
NPp HSD 5%		16.45	

Note: The numbers in column (ab) that are followed by the same letter indicate that there is no significant difference to the 5% HSD test.

Table 4 demonstrates that the treatment package of Manure 1 ton/ha + Phonska NPK 150 kg/ha + Urea 100 kg/ha had the highest response to shelled corn weight per cob, 178.62 g, and was not significantly different from the Phonska NPK treatment of 300 kg/ha. + Urea 200 kg/ha differed considerably between treatment and manure 2 tons/ha.

Production

The findings of the analysis of variance revealed that the treatment of multiple varieties and fertilizer packages had a highly significant influence on maize output, however the interaction between varieties and fertilizer packages had no significant effect.

Table 5. Production (tonnes/ha)

Varieties	Fertilization Package			Average	NPv HSD 5%
	p1	p2	p3		
v1 (Nasa-29)	6.33	6.77	3.73	5.61_y	
v2 (HJ-29)	4.99	5.41	2.69	4.36_x	0.62
v3 (Bisi 18)	5.65	5.35	3.48	4.82_x	
Rata-rata	5.65[a]	5.84[a]	3.30[b]		
NPp HSD 5%		0.62			

Note: The figures in the column (ab) and row (xy) that are followed by the same letter indicate that there is no significant change to the 5 percent level HSD test.

The treatment package for manure fertilization is shown in Table 5. The greatest response was 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha. 200 kg/ha differed considerably between the treatment and manure 2 tons/ha. The treatment of the Nasa-29 type produced the most and differed considerably from the treatments of the other variations.

The Nasa-29 type had the highest production response, according to the data. This demonstrates that these cultivars can respond effectively to the fertilizer package treatment. It is critical in improving agricultural productivity to pick the correct cultivars for the available environmental conditions. According to Tjiptono (2010), the success of growing farming production is heavily impacted by the inclusion of numerous production elements, one of which is the usage of quality seeds. Farmers are well aware of the need of using superior seeds

to increase farming output. However, its implementation must be accompanied by an awareness of the importance of using high-quality and correct seeds. It is envisaged that utilizing excellent seeds will boost productivity per unit area, minimize insect and disease assaults, and other benefits.

Corn growers should aim to select corn varieties that are regarded acceptable for soil conditions based on these results since different corn varieties have varying results depending on the nutrients absorbed by the plant, which are optimized by the use of fertilizer packages. As a result, it is critical to recall the importance of selecting the quality of the seeds to be used in order to avoid losses in time, energy, and expenses related to the use of low quality seeds. This agrees with Kaihatu and Pesireron (2016) The capacity of a variety to adapt to a certain growing environment is reflected in the growth and yield components. The large disparity between farmer performance and the genetic potential of maize varieties is attributable in part to the use of technology components that are not in compliance with recommendations or the growing environment.

Fertilizer is essential for soil fertility since it includes one or more elements that are taken up by plants. So fertilization is the process of giving nutrients to the soil and plants. Fertilizer is a substance that is put to planting soil or plants to satisfy the nutrient demands of plants in order for them to produce well (Dwicaksono et al., 2014). Fertilizers are compounds that are put to soil to supply the necessary components for plant development. Soil fertility must be maintained and increased by adding and replenishing artificial nutrients in order for crop yield to stay normal or rise.

The results revealed that applying a manure fertilization package of 1 ton/ha + NPK Phonska 150 kg/ha + Urea 100 kg/ha had the greatest effect on maize growth and productivity metrics. This demonstrates that the addition of these nutrients provides for a balance of nutrients lost due to harvesting, erosion, and other issues. Fertilization is the process of returning/adding nutrients to the soil. The use of fertilizers with the proper composition might result in high-quality goods. Organic fertilizers and inorganic fertilizers are commonly used fertilizers. Organic fertilizer, according to Sutejo (2002), is fertilizer derived from the decomposition of plant and animal components or wastes, such as manure, green manure, compost, cake, guano, and bone meal. Meanwhile, inorganic fertilizers, often known as synthetic fertilizers, are fertilizers that have been manufactured in factories, such as urea, TSP, and KCl.

Appropriate applications that have a genuine influence on growth and output while also saving expenses should be chosen with care so that farming has a higher added economic value for farmers. This is consistent with Wiryanta's (2003) belief that, in order to maximize output, plants are supplied nourishment, one of which is the application of manure. This indicates that using organic fertilizers, such as cow dung, can enhance plant and maize yield while remaining inexpensive.

The analysis of variance findings revealed that there were no interacting treatments, but corn had an influence on each treatment's single component. With the inclusion of variety therapy, it is expected that more study is required. As well as fertilization packages, in order to obtain treatment combinations that enable maximum growth and yield. Fertilization packages of 1 ton/ha manure + NPK Phonska 150 kg/ha + Urea 100 kg/ha will minimize farmers' production expenses while increasing maize yield over Phonska NPK treatment of 300 kg/ha + Urea 200 kg/ha. This demonstrates that, in addition to being a source of nutrients for manure, the role of manure in meeting the nutritional demands of corn plants also helps to enhance the structure, chemistry, and pH of the soil. This is consistent with Basir's (2002) belief that organic fertilizers, particularly manure, can improve soil chemical properties such as increasing soil cation exchange capacity and nutrient supply of N, P, and S. Manure treatment has raised the pH of the soil. Improvements in soil conditions will boost

soil microbe activity, accelerating the breakdown of additional organic matter and so increasing plant nutrients (Basir & Wahyudi, 2016).

CONCLUSION

Corn growers should aim to select corn varieties that are regarded acceptable for soil conditions based on these results since different corn varieties have varying results depending on the nutrients absorbed by the plant, which are optimized by the use of fertilizer packages. Meanwhile, inorganic fertilizers, often known as synthetic fertilizers, are fertilizers that have been manufactured in factories, such as urea, TSP, and KCl. This indicates that using organic fertilizers, such as cow dung, can enhance plant and maize yield while remaining cost effective. This demonstrates that the role of manure, which can satisfy the nutritional demands of corn plants, helps to enhance the structure, chemistry, and pH of the soil in addition to being a source of nutrients for manure. This is consistent with Basir's (2002) belief that organic fertilizers, particularly manure, can enhance soil chemical characteristics such as boosting soil cation exchange capacity and nutrient supply of N, P, and S. Manure treatment has raised the pH of the soil.

REFERENCES

Aji, H. B., Suwitono, B., Hidayat, Y., & Lala, F. (2021). Optimalisasi Hasil Jagung melalui Pemupukan dan Penggunaan Varietas Unggul pada Lahan Kering di Bawah Tegakan Kelapa. *Jurnal Penelitian Pertanian Tanaman Pangan*, *5*(1), 37–46. https://doi.org/10.21082/jpptp.v5n1.2021.p37-46

Akbar, A. ., Azizah, N., & Suminarti, N. . (2019). Pengaruh Sumber dan Dosis Bahan Organik pada Pertumbuhan dan Hasil Tanaman Jagung (Zea mays) di Lahan Sawah. *Jurnal Produksi Tanaman*, *7*(2), 225–233.

Ashari, U. (2020). Analisis Pendapatan dan Kelayakan Usahatani Jagung di Kecamatan Patilanggio Kabupaten Pohuwato Provinsi Gorontalo. *Prosiding Seminar Nasional Pembangunan Dan Pendidikan Vokasi Pertanian Politeknik Pembangunan Pertanian Manokwari*, *1*, 240–254. https://doi.org/10.47687/snppvp.v1i1.143

Basir, M., & Wahyudi, I. (2016). The Effect of Cow Manure on Phospphate Uptake of Cabbage (Brassica pekinensis) in Entisols Sidera. *Agrotekbis*, *4*(5), 491–499.

Berutu, R. K., Aziz, R., & Hutapea, S. (2019). Pengaruh Pemberian Berbagai Sumber Biochar dan Berbagai Pupuk Kandang terhadap Pertumbuhan dan Produksi jagung hitam (Zea mays L.). *Jurnal Ilmiah Pertanian (JIPERTA)*, *1*(1), 16–25.

Dunggio, T., & Darman, S. (2020). Analisis Implementasi Kebijakan Program Bantuan Benih Jagung Hibrida di Kabupaten Gorontalo. *Journal of Economic, Business, and Administration (JEBA)*, *1*(1), 13–26. https://doi.org/10.47918/.v1i1.7

Dwicaksono, M. R. B., Suharto, B., & Susanawati, L. D. (2014). Pengaruh Penambahan Effective Microorganisms pada Limbah Cair Industri Perikanan Terhadap Kualitas Pupuk Cair Organik. *Jurnal Sumberdaya Alam & Lingkungan*, *1*(1), 7–11. https://jsal.ub.ac.id/index.php/jsal/article/view/99/95

Hasan, A. M., Halid, A., & Hasdiana. (2021). *The Potential For Making Handicraft Products Using Corn Husk Fiber As An Alternative Raw Material*. https://doi.org/10.4108/eai.25-11-2020.2306740

Hawayanti, E., Palmasari, B., & Ardiansyah, F. (2020). Respon Pertumbuhan dan Produksi Tanaman Jagung Manis (Zea Mays Saccaharata Sturt.) pada Pemberian Pupuk Kandang Kotoran Sapi dan Pupuk Fosfat. *KLOROFIL (Jurnal Penelitian Ilmu-Ilmu Pertanian)*, *15*(2), 69–73. https://doi.org/10.32502/jk.v15i2.3860

Hipi, A., Sumarno, J., Rouf, A. A., & Saleh, T. W. (2019). Performance of several varieties of maize and upland rice in the intercropping system in Northern Gorontalo. *IOP Conf. Series: Earth and Environmental Science*. https://doi.org/10.1088/1755-1315/484/1/012049

Hunowu, M. A., Lampe, M., Idrus, N. I., & Safriadi. (2022). From Sacred To Profane: Efforts To Control The Corn Pests in Gorontalo, Indonesia. *Journal of Sustainability Science and Management Volume*, *17*(5), 117–132.

Hunowu, M. A., Tamu, Y., Obie, M., & Pakuna, H. B. (2021). Modernization and Shifting Practices of Local Wisdom on Corn Farming in Gorontalo Province. *Sodality: Jurnal Sosiologi Pedesaan*, *9*(2).

https://doi.org/10.22500/9202134694

Irawan, S., Safruddin, & Mawarni, R. (2019). Pengaruh Perlakuan Jarak Tanam dan Pemberian Pupuk NPK Terhadap Pertumbuhan dan Produksi Tanaman Jagung (Zea mays L.). *BERNAS (Agricultural Research Journal)*, *15*(1), 174–184.

Kango, U. (2019). Strategi Pemasaran Jagung Gorontalo Sebagai Program Unggulan Daerah. *JAMBURA (Jurnal Ilmiah Manajemen Dan Bisnis)*, *1*(3), 366–391.

Kriswantoro, H., Safriyani, E., & Bahri, S. (2016). Pemberian Pupuk Organik dan Pupuk NPK pada Tanaman Jagung Manis (Zea Mays Saccharata Sturt). *KLOROFIL (Jurnal Penelitian Ilmu-Ilmu Pertanian)*, *11*(1), 1–6. https://doi.org/10.32502/jk.v11i1.209

Kumaji, S. S., & Katili, A. B. S. (2019). Pemberdayaan Masyarakat Petani Jagung (Zea Mays L.) Melalui Pengembangan Kelompok Usaha Bersama (KUBE) Melati. *Jurnal Pengabdian Kepada Masyarakat*, *25*(1), 36–41. https://doi.org/10.24114/jpkm.v25i1.13937

Lahan, D. I., Nisfuriah, L., Aminah, R. I. S., & Satria, D. (2021). Pemanfaatan Pupuk Fosfat dan Pupuk Hayati pada Jagung Manis (Zea Mays Saccaharata Sturt.) di Lahan Kering. *KLOROFIL (Jurnal Penelitian Ilmu-Ilmu Pertanian)*, *15*(1), 17–22. https://doi.org/10.32502/jk.v15i1.3721

Mutaqin, Z., Saputra, H., & Ahyuni, D. (2019). Respons Pertumbuhan dan Produksi Jagung Manis terhadap Pemberian Pupuk Kalium dan Arang Sekam. *Jurnal Planta Simbiosa*, *1*(1), 39–50. https://doi.org/10.25181/jplantasimbiosa.v1i1.1262

Nur, M., Rafiuddin, & Asrul. (2018). Pengaruh Jarak Tanam Terhadap Pertumbuhan dan Hasil Jagung (Zea mayz. L) Pada Tingkat Umur Kelapa Sawit (Elaeis guineensis Jacq). *Buletin Palma*, *19*(2), 127–146.

Putra, H. E., & Marzaman, A. (2019). Application of Participatory Leadership in Optimizing the Potential of the Agricultural Sector. *Journal of Government and Political Studies*, *2*(2), 50–58. https://doi.org/10.32662/gjgops.v2i2.549

Rochmah, H. F., Suwarto, & Muliasari, A. A. (2020). Optimalisasi Lahan Replanting Kelapa Sawit Dengan Sistem Tumpangsari Jagung (Zea Mays L.) dan Kacang Tanah (Arachis Hypogaea). *Jurnal Simetrik*, *10*(1), 256–262.

Rosadi, A. P., Lamusu, D., & Samaduri, L. (2019). Pengaruh Pemberian Pupuk Kandang Sapi Terhadap Pertumbuhan Jagung Bisi 2 Pada Dosis Yang Berbeda. *Babasal Agrocyc Journal*, *1*(1), 1–7.

Sari, S. H., Ghulamahdi, M., Suwarno, W. B., & Melati, M. (2020). Kajian Berbagai Pola Tanam terhadap Peningkatan Produktivitas Jagung dan Kedelai dengan Berbagai Varietas Jagung. *Jurnal Agronomi Indonesia (Indonesian Journal of Agronomy)*, *48*(3), 227–234. https://doi.org/10.24831/jai.v48i3.32267