Volume 5 Issue 1 (2025) Pages 250 - 259
Amkop Management Accounting Review (AMAR)
ISSN : 2828-2248 (Online)

Factors Influencing Maize Farmers' Skills on the Success of Maize Farmers in Deli Serdang District

Rizki Hambali Hsb[1]✉, Zainarti [2] , Nursantri Yanti[3]
[1,2,3] Management Study Program, Faculty of Economics and Islamic Business, Universitas Islam Negeri Sumatera Utara, Medan Indonesia

Abstract
This study examines the factors that influence the success of maize farmers in Deli Serdang District with a focus on skills, knowledge, and attitudes/actions. The research was conducted in three villages, namely Suka Maju Village, Sampu Cipta Village, and Gunung Tinggi Village. The sampling method used was simple random sampling with a purposive approach. 69 respondents were selected based on the stratified random sampling formula. Data analysis used multiple linear regression with the help of SPSS software. The results showed that the Knowledge variable (X1) had a significant effect on the success of maize farmers, while the Attitude/Action variable (X2) did not show a significant effect. Furthermore, the results of the F test showed that together the two variables did not have a statistically significant effect on the success of farmers.

Keywords: Farmer Skills, Knowledge, Attitude/Action.

✉ Corresponding author :
Email Address : hambalirizki74@gmail.com

INTRODUCTION

The agricultural sector in Indonesia is becoming increasingly important as it plays a key role in food provision. In addition, the sector also creates jobs, contributes foreign exchange earnings through export growth, and supports industries that depend on agricultural raw materials. (Soekawarti, 1996).

Maize farming in Deli Serdang shows that although the region has great potential for maize production, there are still challenges faced by farmers. Some of the problems that often arise include limited access to the latest agricultural technology, lack of understanding of environmentally friendly agricultural practices, as well as market price fluctuations that affect farmers' income.

Farmer skills are a key factor in improving agricultural productivity. The ability of farmers to change their behavior and habits in farming is influenced by various factors, including knowledge, farming experience, age, and others. Lack of skills can lead to suboptimal production results. Counseling from the government and private sector, comparative studies to more developed areas, and sufficient time to absorb knowledge through the learning process, are some ways to improve farmers' skills (Mosaikanto, 2009).

Deli Serdang Regency, which is ranked as the fourth corn-producing region in North Sumatra (after Karo, Dairi, and Langkat), has a strategic position because it is

DOI: 10.37531/amar.v5i1.2524

directly adjacent to the Strait of Malacca, one of the busiest sea lanes in the world. With the implementation of the National Strategic Area (KSN), Deli Serdang Regency offers many business and investment opportunities, which can be utilized for the development of the agricultural sector, especially maize.

Maize (Zea mays L) is one of the main carbohydrate-producing crops, apart from rice and wheat. In some regions, maize serves as a staple food and can be processed into various useful forms. In addition, maize plays an important role as the main ingredient in animal feed production. Along with the improvement of people's living standards and the needs of the animal feed industry, the demand for maize continues to increase from year to year, making it a very vital commodity (*Prakesta, 2018*).

Budiman (2012) states that maize serves not only as animal feed but also as a staple food in many regions. In addition to being a source of carbohydrates, maize is cultivated as a green fodder for livestock, the cobs are utilized, the seeds are processed for oil, and the seeds are further refined into corn flour or corn starch. In addition, both the kernels and cob meal are used as raw materials in various industries...

Maize farmers' success in running their farms is influenced by various factors, including their competence, access to technology, availability of production inputs, institutional support, and government policies. Therefore, analyzing and collecting data on farmers' success is essential to identify the determinants that affect their production yields and income levels.

According to Siagian (2021), the success of maize farmers is closely related to the agribusiness competencies possessed by farmers in managing maize farming effectively and efficiently. These competencies include knowledge of cultivation techniques, selection of superior varieties, pest and disease management, and crop marketing. Mastery of agricultural technology and adoption of innovations are also key factors that can increase the productivity and competitiveness of maize farmers in the market.

Furthermore, Zainarti (2021) emphasized that every individual has the responsibility to fulfill their duties in life. These responsibilities are also expected to be carried out with high standards and ethics, so that individuals can achieve optimal results and make a positive contribution to their environment.

To achieve the expected goals, it is necessary to determine the importance of goals by understanding the function of the management function by producing resources starting with planning, organizing processing and supervising *(zainarti, 2014)*.

Research yopan latif et al. (2023), irwan bempah et al. (2023) and yanti saleh et al. (2023) show that farmers' behavior towards maize farming is very high. The results of the study noted that aspects of farmer attitudes, skills and knowledge are very influential on maize farming. In addition, Ekawati et al. (2019) shows that farmers' responses such as aspects of knowledge, attitudes and skills of farmers are very influential on the application of the UPJA program. Farmers show readiness to provide advice and experience related to the UPJA program and are willing to coordinate in its application.

This study aims to examine the factors that influence maize farmers' skills, as well as their knowledge and attitudes/behavior, and to assess how these elements contribute to the overall success of maize farming.

DOI: 10.37531/amar.v5i1.2524

METHODOLOGY

This study uses quantitative research and multiple linear regression as a statistical method to test the relationship between these variables. According to Ghozali (2018), multiple linear regression is used when there is more than one independent variable, with the aim of determining the direction and strength of the influence of these variables on the dependent variable.

The research data sources were primary and secondary data related to farmers' skills. Primary data was collected through field observations and interviews with respondents using structured questionnaires. Meanwhile, secondary data was obtained from various documents and reports issued by relevant institutions, such as the Deli Serdang Central Bureau of Statistics (BPS), as well as information disseminated through social media and agricultural extension offices in Gunung Tinggi, Sampe Cipta and Sukamaju villages.

The area taken for the regional sample was purposively selected (Bonita, 2013:28). The villages selected were Sukamaju Village in Sunggal Sub-district with a farm size of 560 hectares, Dampe Cipta Village in Kutalimbaru Sub-district with a land size of 120 hectares, and Gunung Tinggi Village in Pancur Batu Sub-district with a land size of 1,650 hectares. The number of maize farmers in the three villages is 90 farmers in Sukamaju, 120 farmers in Dampe Cipta, and 480 farmers in Gunung Tinggi, making a total of 690 farmers in the three villages. From this number, a sample of 69 maize farmers was found using the simple random sampling method.

$$N = \frac{690(1{,}96)^2 \times 0{,}05}{690(0{,}05)^2 + (1{,}96)^2 + (0{,}05}$$

$$N = 2,650,704 \times 0{,}05$$

$$N = \frac{132,5352}{1.725 + 3.816 \times 0{,}05}$$

$$N = \frac{132,532}{1,96158} = 69$$

To ensure proportional representation of each village, the sample distribution was calculated using the proportional allocation formula as follows:

$$N = \frac{Na}{Nab}\ x\ Nab$$

Then:

Sukamaju Village $: \frac{90}{60} \times 69 = 9$

Sampecipta Village $: \frac{120}{690} \times 69 = 12$

High Mountain Village $: \frac{480}{690} \times 69 = 48$

From the results of the above calculations, Sukamaju Village obtained 19 farmers, Sampecipta Village as many as 12 corn farmers, Gunung Tinggi Village as many as 48 corn farmers, sampling for each farmer criteria is done by simple random method.

There are several stages of data analysis to ensure the validity, reliability, and suitability of the regression model used. These stages include:

1. Validity and Reliability Test

   The validity test aims to assess the instrument (questionnaire) measuring what you want to measure. This test is carried out by comparing the calculated

DOI: 10.37531/amar.v5i1.2524

correlation value (r-count) with the critical value (r-table). Questionnaire items with r-count > value of r table are considered valid and suitable for further analysis.

Reliability test is used to assess the stability of the measurement instrument. This is evaluated using Cronbach's Alpha coefficient, where a value > 0.60 indicates the instrument is reliable.

2. Classical Assumption Test

The Normality test is carried out to determine whether the residuals in the regression model are normally distributed. This is assessed using the Kolmogorov-Smirnov method, where a significant value > 0.05, the data follows a normal distribution.

Heteroscedasticity Test (Glejser Test) is used to identify whether there is unequal variance in the residuals of the regression model. Significant value > 0.05, the data does not experience heteroscedasticity.

Multicollinearity test aims to detect the presence of correlation between independent variables. The regression model is considered free from multicollinearity if the Variance Inflation Factor (VIF) is less than 10 and the Tolerance value is greater than 0.10.

3. Multiple Linear Regression Analysis

T-test (Partial) to assess the effect of independent variables (X1 and X2) on the dependent variable (Y) individually. This test helps determine which independent variable significantly affects the dependent variable. If the significance value is <0.05 or the calculated t value> t table, then it shows a significant effect. Otherwise, the effect is considered insignificant.

F-test (Simultaneous) to evaluate the independent variables, when combined, have a significant impact on the dependent variable. If the significance value is <0.05 or the F value > F table, this indicates that X1 and X2 together have a significant impact on Y. If this condition is not met, the combined effect is considered insignificant.

The Coefficient of Determination (R^2) reflects the proportion of variance in the dependent variable that can be explained by the independent variables in the model. Higher R^2 values signify stronger predictive ability and better overall model fit.

RESULTS AND DISCUSSION

Validity Test

R Table

(df) = n - 2 = 69 - 2 = 67 (0.236)

IP	Pearson Correlation	.384**	.707**	.914**	.350**	.926**
	Sig. (2-tailed)	.001	.000	.000	.003	.000

Figure 1. X1 Validity Test Results (Science)

STP	Pearson Correlation	.473**	.537**	.509**	.612**	.458**
	Sig. (2-tailed)	.000	.000	.000	.000	.000

Figure 2. X2 Validity Test Results (Farmer Attitude/Action)

DOI: 10.37531/amar.v5i1.2524

KP	Pearson Correlation	.653**	.398**	.637**	.404**	.358**
	Sig. (2-tailed)	.000	.001	.000	.001	.003

Figure 3. Y Validity Test Results (Farmer Success)

Based on the results above, all items on the Knowledge (X1), Farmer Attitude/Action (X2), and Farmer Success (Y) variables have a calculated r value > r table (0.236) and a significance value below 0.05. Thus, all items on these variables are valid in this study.

Reliability Test

Reliability Statistics

Cronbach's Alpha	N of Items
.712	5

Figure 4. X1 Reliability Test Results

Based on the test results above, variable X1 obtained a Cronbach's Alpha value of 0.712. This value is> 0.60, so the instrument on the **Science** variable **(X1)** is reliable.

Reliability Statistics

Cronbach's Alpha	N of Items
.638	5

Figure 5. X2 Reliability Test Results

Based on the test results above, the X2 variable obtained a Cronbach's Alpha value of 0.638. This value is > 0.60, so the instrument on the **Farmer Attitude/Action** variable **(X2)** is reliable.

Reliability Statistics

Cronbach's Alpha	N of Items
.698	5

Figure 6. Y Reliability Test Results

Based on the test results above, variable Y obtained a Cronbach's Alpha value of 0.698. This value is > 0.60, so the instrument on the **Farmer Success** variable **(Y)** is reliable and can continue the next test.

Normality Test

DOI: 10.37531/amar.v5i1.2524

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		69
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	2.13722556
Most Extreme Differences	Absolute	.072
	Positive	.058
	Negative	-.072
Test Statistic		.072
Asymp. Sig. (2-tailed)		.200[c,d]

Figure 7. Normality Test Results

Based on the results of the normality test (Kolmogorov-Smirnov), a significance value of 0.200> 0.05 was obtained. So it can be concluded that the residual data is normally distributed, so the assumption of normality is met.

Heteroscedasticity Test (Glejser Test)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.451	1.104		1.315	.193
	Ilmu Pengetahuan	-.009	.044	-.026	-.206	.838
	Sikap/Tindakan Petani	.029	.075	.048	.388	.699

a. Dependent Variable: Abs_RES

Figure 8. Heteroscedasticity Test Results (Glejser Test)

Based on the Glejser test results, the significance value obtained is 0.838 for variable X1 and 0.699 for variable X2. Because both values are greater than 0.05, it can be concluded that the regression model does not show symptoms of heteroscedasticity.

Multicollinearity Test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Ilmu Pengetahuan	.977	1.023
	Sikap/Tindakan Petani	.977	1.023

Figure 9. Multicolonierity Test Results

Based on the table above, all independent variables (X1 and X2) have a Tolerance value of 0.977 (> 0.10) and a VIF value of 1.023 (< 10.00).

So it can be concluded that: There are no symptoms of multicollinearity in the regression model between variables X1 (Knowledge) and X2 (Farmer

DOI: 10.37531/amar.v5i1.2524

Attitude/Action). Thus, both variables can be used simultaneously in the model without destabilizing the regression results.

Test t (Partial)

df = n - k - 1 = 69 - 2 - 1 = 66

With **α/2 = 0.025** and **df = 66**, the **t table** value can be seen from the t distribution which is 1.996.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	13.398	1.941		6.903	.000
	Ilmu Pengetahuan	.163	.077	.256	2.128	.037
	Sikap/Tindakan Petani	-.074	.132	-.068	-.561	.577

Figure 10. Results of the t-test

Based on the results of the partial t test, the Science variable (X1) has t count (2.128) > t table (1.997) and a significant value of 0.037 <0.05, it is concluded that Science (X1) has a significant effect on Farmer Success (Y). In contrast, the variable Farmer Attitude/Action (X2) has a t-statistic of -0.561 and a significance value of 0.577. It can be concluded that Farmer Attitude/Action has no significant effect on Farmer Success.

F Test (Simultaneous Test)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.597	2	10.799	2.295	.109[b]
	Residual	310.606	66	4.706		
	Total	332.203	68			

Figure 11. F Test Results

= F (k; n - l)

= F (2 ; 69 - 2)

= F (2 ; 67)

With the value of k = 2 and the result of respondents = 67, the value of the **F table** (based on the F distribution table) is 3.13.

Based on the results of the F test, obtained F count of 2.295 with a significance value of 0.109. Since F count < F table (2.295 < 3.13) and significance value > 0.05, it can be concluded that simultaneously the variables of Knowledge (X1) and Attitude/Action of Farmers (X2) have no significant effect on Farmer Success (Y).

Determination Coefficient Test

DOI: 10.37531/amar.v5i1.2524

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.255[a]	.065	.037	2.16937

a. Predictors: (Constant), Sikap/Tindakan Petani, Ilmu Pengetahuan

Figure 12. Results of the Coefficient of Determination Test

Based on the table above, the R Square value is 0.065. This indicates that *Science (X1)* and *Farmer Attitude/Action (X2)*, together are able to explain *Farmer Success (Y)* by 6.5%. Meanwhile, the remaining 93.5% is attributed to other variables not included in this regression model. This means that the model's ability to explain variations in farmer success is low, and there may be other factors that are more dominant in influencing farmer success than the variables studied.

Discussion

Science Significantly Affects Farmer Success

The T-test results show that Knowledge (X1) has a significant effect on the success of maize farmers. This study is in line with Hasan et al. (2024), which emphasizes the importance of increasing farmers' knowledge through extension to understand sustainable agricultural practices. Good knowledge allows farmers to adopt more efficient agricultural technologies and practices, thereby increasing productivity and farm success.

Farmer Attitude/Action Not Significantly Influenced

In contrast, the Farmer Attitude/Action variable (X2) has no significant effect on farmer success. Based on Latif et al. (2022), found that although farmers have a positive attitude towards maize farming, it is not always followed by concrete actions that increase success. Other factors such as practical skills and access to resources also play an important role in determining farm success.

F Test Not Significant Simultaneously

The results of the F test show that collectively Farmers' Knowledge and Attitude/Action have no significant effect on the success of maize farming. There are other factors that are more dominant in influencing farm success. According to Suciani et al. (2022), external variables such as access to capital, market opportunities, and farm risk are significantly related to farmers' motivation and overall maize farming success.

CONCLUSION

Based on the above discussion, it can be concluded that Knowledge (X1) significantly affects the success of maize farmers, indicating that greater knowledge increases the likelihood of agricultural success. In contrast, the Farmer Attitude/Action variable (X2) did not show a significant impact, which may be due to

DOI: 10.37531/amar.v5i1.2524

the difference between farmers' positive attitudes and their actual practices in the field. Furthermore, when tested together, both variables did not show a significant influence on farmer success, as reflected in the non-significant F-test results. Other external factors-such as access to technology, extension services, government policies and market dynamics-may play a more substantial role. This conclusion is also supported by the low coefficient of determination (R^2) of 6.5%, which indicates that 93.5% of the variability in farmer success is explained by factors beyond Knowledge and Attitude/Action.

Reference:

Alimuso, sumarto. 2009. Progam Peningkatan Bebas Nasional (P2BM) Prasiding seminar nasional padi 2008 BBPP Liptang DEPTHAN

Anonimus, 2012. Perluasan Tanaman Baru Jagung Deli Serdang Anonimus, 2017. Perluasan daerah Tanaman Baru Jagung, Deli Serdang

Anonimus. 2021. Persiapan Panen, Poktan Sinokrap Komiditi, Jagung Tanggelrejo

Ardian, A., Murniati, M., Yoseva, S., Zuhri, E., & Nurbaiti, N. (2021, November). Teknik mengatasi layu pada tanaman cabai menuju desa sejahtera mandiri di kelompok tani Desa Padang Mutung Kecamatan Kampar. In *Unri Conference Series: Community Engagement* (Vol. 3, pp. 493-498).

Balipta, 2004. Profil Balai penelitian Tanaman Padi Pusat Penelitian dan Pengembangan Tanaman pangan sukamandi

Bolly Yasinta, Yonita Jeksen, Julianus, 2021. Pengaruh Pembelian Pupuk Kandang Ayam Terhadap Pertumbuhan dan Hasil Tanaman Mentimun (cucumis satiuus) Dikabupaten Sikka NTT.

Bundiman H, 2012. Budidaya Jagung Organik Pustaka baru press Yogyakarta.

Ekawati, 2019. Aspek Pengetahuan, Keterampilan, Sikap dan Keterampilan pada Respon Petani terhadap UPJA di Kecamata Toho

Elyta, Mutakir U2 dan Rizieq P. 2019 Pengembangan Adopsi, Inovasi Melalui Jaringan Kementrian.Jurnal Zizzah Ayu (P3-9)

Fadillah M,L BT. Eddy dan S.Gayatri, 2018. Pengaruh Tingkat Pengetahuan Sikap dan keterampilan penerapan Agribisnis, Terhadap produksi padi petani padi di Kec Cimanggu Kabupaten Cilacap

Faldzhah, sabrina, 2018. Analisa pengendalian Kualitas Jagung Pipil pakan Ternak Menggunakan Metode Sigma UNBRAN FP. Malang

Fitria, L., Lubis, F. A., & Nurbaiti, N. (2024). Analisis Strategi Digital Marketing dalam Meningkatkan Penjualan Bisnis Online Pada Suhada Grup. *Jurnal Manajemen Pendidikan Dan Ilmu Sosial*, *5*(3), 212-223.

Ghozali, I. (2018). Aplikasi Analisis Multivariate dengan Program IBM SPSS 25 (9 ed.). Semarang: Badan Penerbit Universitas Diponegoro.

Hamzat, Muhthmainah Baksi, 2018, Pengaruh pengetahuan, Keterampilan dan Sikap Terhadap Penerimaan Teknologi Budidaya Organik Skips S. UNHAS Makassar

Harmoko, dan Darmansyah E. 2016. Pertanian Melalui Media Komunikasi Pada Kelompok Zambangan kota Singkawang

Hasan, S., Apriantono, R., & Prasetyo, A. (2024). Pengaruh penyuluhan terhadap peningkatan pengetahuan dan produktivitas petani. *Jurnal Ekonomi Pertanian*

DOI: 10.37531/amar.v5i1.2524

dan Agribisnis, 8(2), 120–129. https://jepa.ub.ac.id/index.php/jepa/article/view/2539

Hendiniwati Lusiana Ulfa, 2017. Alasan Petani Muslim Menjual Hasil Panen Kepada, Tengkulak di Desa Galunggung Kec. Purwaharjo UNAIR Surabaya

Herdiyanto Ekko. 2015. Pengambilan Keputusan Petani di Dataran tinggi Meningkatkan usahatani UGM yogyakarta

Latif, M., Nur, L., & Hasanah, I. (2022). Persepsi dan sikap petani terhadap usahatani jagung di Kecamatan Bolangitang Timur. *Agrikan: Jurnal Agribisnis Perikanan*, 15(1), 30–38. https://ejurnal.ung.ac.id/index.php/AGR/article/view/18386

Lubis, A. A., Harahap, M. F., & Nurbaiti, N. (2021). Analisis Pengembangan Sistem E-Business Untuk Umkn Penggilingan Padi Di Dusun X Kecamatan Batang Kuis Kabupaten Deli Serdang. *Ekonomi Bisnis Manajemen dan Akuntansi (EBMA)*, *2*(2), 202-206.

Ningrum Agustin, Malevi.2017. Peran Keluarga Dalam Menumbuhkan Jiwa Wirausaha Sejak Usia Dini Universitas Negeri Surabaya, Jurnal.

NURBAITI, N. (2019). Pemberdayaan Perempuan Melalui Pelatihan Dalam Meningkatkan Pendapatan Keluarga (Studi pada Pengelolaan Usaha Tenun Tembe Nggoli di Desa Simpasai Kecamatan Lambu Kabupaten Bima) (Doctoral dissertation, Universitas Negeri Makassar).

Prakasta, A. 2018, Agribisnis Jagung Bandung Pustaka Grafika

Rahmawati, A. 2013. Pengenalan Alat Penanaman Lapangan PraktikumMekanisme Laboratium Hama dan penyakit Tanaman Agroteknologi FP. Lampung University Lampung

Sanakis, 2013. Nasionalis Education Amerika Serikat

Siagian, 2021. Tingkat keberhasilan kinerja penyuluh dalam meningkatkan petani padi sawah di desa tanah poleang, kecamatan poleang utara

Slameto. (2010). *Belajar dan Faktor-faktor yang Mempengaruhinya*. Jakarta: Rineka Cipta

Soekawarti, 1996. Pembangunan pertanian untuk mengentaskan kemiskinan. Universitas indonesia. jakarta

Sriyawati Tri, Fatehiya Anna, Aminah Siti, 2022. Pengaruh Terhadap Pengetahuan Inovasi Budaya cengkeh di kab. Halma Timun

Suciani, M., Kadir, H., & Walangitan, L. (2022). Faktor-faktor yang mempengaruhi keberhasilan petani dalam budidaya jagung. *Jurnal Ilmiah Agribisnis*, 14(2), 66–75. https://ejurnal.ung.ac.id/index.php/AGR/article/view/20530

Sudaryono, 2016. Pengaruh Lokasi Produksi dan Harga terhadap Keputusan pembelian kopi Admiral Navy Coffe Cafe Surabaya.

Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

Suhardiyono L. 1990. Pemanfaatan Metode Penyuluhan Pertanian Oleh Petani Cabai Merah Jakarta

Zainarti, 2021. Manajamen Sumber Daya Manusia Reformulasi Sumber Daya Manusia Berkarakter Islami Universitas Islam Sumatera Utara Medan

Zainarti, Z. (2014). Manajemen Islami Perspektif Al-Qur'an. *Hijri: Jurnal manajemen kependidikan dan keislaman*, *7*(2), 25-37.