Yield Performance of Ten White Corn Hybrids under Claveria Condition

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Abstract

This study aimed to evaluate the performance and profitability of different corn hybrids conducted at MOSCAT, Claveria, Misamis Oriental, Philippines. The ten white corn hybrids (TSG 108 w, 30W30, USMARC 8102w, DAS 2W 042, USMARC 704w, MM7314w, USMDA 062 Hw, TCT 112w, USMDA 064 Hw, and 30W40) tested vary significantly in their agronomic parameters except for the plant height and stand count during the dry season cropping which showed no significant difference among each treatment means. It signifies that different corn hybrids differ significantly in its genes. The yield and yield components also showed slightly to highly significant difference among the corn hybrids giving MM7314w as the high yielding hybrid with 5.95 tons/ha followed by 30W40 with yield of 5.21 tons/ha during the 1st cropping and 30W40 in the 2nd cropping as the high yielding hybrid of 6.73 tons/ha. In the cost and return analysis, for the 1st cropping, MM7314w gave the highest Return of Investment (ROI) of 1.19 per peso invested and USMARC 704w gave the lowest of 0.18 per peso. In the 2nd cropping, 30W40 obtained the highest ROI of 2.39 while USMARC 8102w obtained the lowest of 0.67.

Based on the results of the study, 30W40 and TSG 108w corn hybrids were the two best hybrids to be recommended since it gave significantly higher yield compared to other hybrids used. These hybrids did not give the highest yield during the 1st cropping. However, the difference between their means with that of the highest yield which was MM7314w is not significantly different.

Keywords: yield performance; hybrids; return of investment

1. Introduction

Corn, scientifically known as *Zea mays* is one of the most popular crops grown worldwide. It grows in any places provided proper cultural

management is given but there is no assurance on whether it will give high or low yield. The capacity to maintain the country's corn production level was borne by the yellow corn component. More area has been devoted to yellow corn than white corn. Yield of yellow corn also continued to increase from around 1.4 mt/ha in the early 1980's (The National RDE Agenda for Corn, DA-BAR, 2003) to as high as 6 tons/ha per observation for the current year. While yellow corn is used primarily as feed for animals, white corn serves mainly as staple food to some Filipinos. However, on occasional cases when supply of yellow corn decreases, white corn is also used as feeds for animals.

Recently, the Philippine corn industry has been confronted with problems that cause low productivity and marginal profitability. The very low adoption of modern production technology and the use of inappropriate corn cultivars for a particular locality are among the major constraints to productivity.

The goal of the National Research, Development and Extension agenda and program for white corn is for food security and better economic condition for white corn farming families. Their intermediate goal is to develop more productive and profit-enhancing farming practices using white corn. Thus, MOSCAT RDE through the National Cooperative Test for corn has come up with the study on the "Yield performance of white corn hybrids under Claveria condition". This study primarily aimed to determine which among the white corn hybrids tested are suitable under Claveria condition. Specifically, it aimed to evaluate the agronomic parameters of the different corn hybrids, compare its yield performance and profitability; and to determine which hybrid is suitable and productive under the said condition.

2. Methodology

The methodology used was based on the National Cooperative Test for corn conducted in MOSCAT Research Site, Claveria, Misamis Oriental, Philippines. The land was thoroughly prepared, well-drained, and more or less uniform in soil fertility and slightly sloping. Early plowing was done to allow enough time between plowings and harrowings.

Randomized complete block design (RCBD) with four replications was used in the study. Each plot measured 3.0 m in width and 5.0 m in length. This

size of plot accommodated 4 rows 0.75 cm apart. The two inner rows with a total of 52 hills were used as data rows.

2.1 White Corn Hybrids

The ten white corn hybrids tested in this research were TSG 108 w, 30W30, USMARC 8102w, DAS 2W 042, USMARC 704w, MM7314w, USMDA 062 Hw, TCT 112w, USMDA 064 Hw, and 30W40.

2.2 Planting, Thinning, Weeding and Cultivation

Two seeds per hill spaced 20 cm between hills were sown and covered with about 2 cm of soil. Corn seedlings were thinned to a stand of 1 plant per hill 7 days after seedling emergence. This leaves the equivalent of some 66,666 plants per hectare. Hand weeding was done to completely control the weeds. Shallow hilling-up was done 30 days immediately after sidedressing the remaining nitrogen, to cover the fertilizer with soil and to further control the weeds.

2.3 Fertilization

The recommended nitrogen was applied in split amount, one-third at planting and the rest was sidedressed 30 days later. All of the recommended Phosphorus Pentoxide ($P_2O_{5)}$ and Potassium Oxide (K_2O) were applied together with the basal N at planting. Fertilizer was applied at the rate of 120-60-60- NPK per hectare as follows:

At Planting, 60-60-60 (basal)

14-14-14	=	435 grams/plot or
		109 grams/row

For sidedressing (20 days after emergence)

Urea	=	265 grams/plot or
		66 rams/row

2.4 Data Gathering

2.4.1 Agronomic Data

The following agronomic data were measured: (a) *silking days* - was recorded as the number of days from seedling emergence to a time when 50% of the plants of a given entry have tasseled; (b) *plant height, (cm)* - is

the average height of 20 random plants, measured from ground level to the base of the tassel; (c) *ear height (cm)* - is the average ear height of 20 random plants, measured from ground level to the node bearing the lower ear; (d) *stand count* - is the total number of plants in the two inner rows taken before harvesting; (e) *lodged plants (stalk lodged)* - were recorded before harvest or at the time stand count was taken; (f) *ear length (cm)* - was recorded as the average of 20 ears harvested at random from each plot; (g) *number of ears harvested/plot* - was taken immediately after harvesting; (h) *ear weight* - was taken as the fresh weight of the total number of ears harvested from two inner rows/plot (dehusked ears).

Disease rating was also taken in a scale of 1-5; with 1 as highly resistant; 3 as susceptible and 5 as highly susceptible to diseases.

2.4.2 Yield Determination

Moisture content (*MC*) was measured using Moisture Tester and grain yield was computed using the following formula:

$$Yield\ (kg/ha) = a \times \frac{b}{c} \times \frac{100\% - \%MC}{85} \times \frac{GW}{EW}$$

where:

a – fresh ear weight per plot (kg)
b – stand count per plot (actual)
c – perfect stand (60,606 plants/ha)
MC – moisture content at harvest
85 – constant figure from (100-15)/100 for adjusting yield to 15% MC
GW – grain weight of 20-ear samples
EW – weight of the 20-ear samples

For shelling percentage, samples were hand shelled and the shelling percentage was computed using the formula:

$$Shelling\ Percentage = \frac{Weight\ of\ shelled\ grain}{Total\ weight\ of\ dehusked\ ear} \times 100$$

2.4.2 Cost and Return Analysis

The cost and return of plants per hectare was estimated based on the prevailing market price of corn grains in the area. The computed cost of production per hectare was deducted from the gross return to obtain the net return per hectare.

2.4.4 General Description of the Study Area

Table 1 presents the general condition of the area considered in this study.

Table 1. Different parameters and their descriptions of the study area

Parameters	Description
Climate (Type)	Type III
Soil Type	Jasaan Clay
Topography	Slightly sloping (0-8%)
Altitude	600 masl

3. Results and Discussion

3.1 The Crop Environment

The results presented in Figure 1 are from crop year 2008-2009 wet and dry seasons. White corn hybrids were sown in May and November 2008 for wet and dry seasons, respectively. During the dry season planting, there was high intensity of rain in January 2009 causing almost all the plants to lodge.

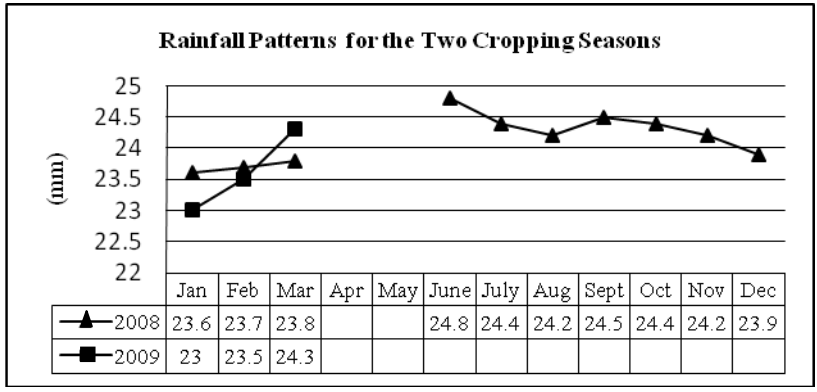
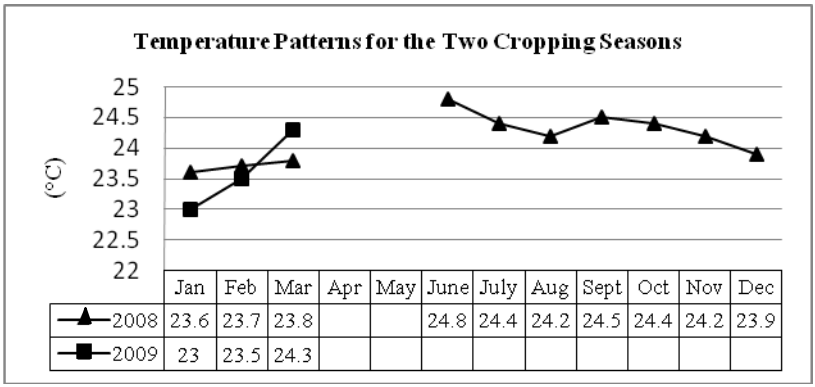


Figure 1. Rainfall pattern of (MOSCAT) Poblacion, Claveria, Misamis Oriental during wet season 2008 and dry season 2008-2009

The mean annual rainfall of the area is 258.13 mm in 2008 and 281.83 mm on January to March 2009.

The mean annual average temperature in the area is shown in Figure 2 where temperature is 24.14^{0}C for the year 2008 and 23.60^{0}C for January-March of 2009. Lowest temperature occurred during the month of January with 23.59^{0}C while the hottest month was September with the average temperature of 24.52^{0}C. Rainfall affects greatly for any crop production. MOSCAT, Claveria receives mean annual rainfall total amounting to 2,581.25 mm for the year 2008 and 845.50 mm for January-March 2009, highest in January 2009 with 612.75 mm and lowest in March 2009 with only 71.75 mm (MOSCAT Agromet Station).



	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2008	23.6	23.7	23.8			24.8	24.4	24.2	24.5	24.4	24.2	23.9
2009	23	23.5	24.3									

Figure 2. Rainfall pattern of MOSCAT Poblacion, Claveria, Misamis Oriental during wet season 2008 and dry season 2008-2009

3.2 Pest and Diseases

Table 2 presents the rate of insect and pest attacking the white corn hybrids during the wet and dry season of planting.

Number of stalk rot, ear worm and ear rot were counted per plant per plot before harvest. As shown in the table, some white corn hybrids are susceptible to stalk rot (DAS 2W 042, MM7314w) and almost all hybrids were damaged with earworm and ear rot.

3.3 Agronomic and Yield Parameters

The different agronomic and yield parameters of the ten (10) white corns are presented in Tables 3, 4 and 5.

Table 2. Rate of diseases and pest present in the 10 white corn hybrids under Claveria condition during wet season (WS) and dry season (DS)

Treatments	Stalk rot		Ear worm		Ear rot	
	WS	DS	WS	DS	WS	DS
TSG 108 w	1	1	1	3	1	1
30W30	1	1	1	3	1	3
USMARC 8102w	1	1	1	3	3	3
DAS 2W 042	1	3	1	3	1	1
USMARC 704w	1	1	1	3	1	3
MM7314w	1	3	1	3	1	3
USMDA 062 Hw	1	1	1	3	1	3
TCT 112w	1	1	1	3	1	3
USMDA 064 Hw	1	1	1	3	1	3
30W40	1	1	1	1	1	1

Legend: scale: 1 - highly resistant; 3 - susceptible; 5- highly susceptible

Table 3. Plant height, ear height, ear length and days to silking during wet season (WS) and dry season (DS)

Treatments	Plant height, cm		Ear height, cm		Ear length, cm		Days to silking, DAE	
	WS	DS	WS	DS	WS	DS	WS	DS
TSG 108 w	321.50^{a}	195.93	167.50^{a}	128.11^{a}	18.44^{ab}	18.95^{ab}	69^{ab}	62^{abc}
30W30	277.75^{d}	200.50	115.50^{cd}	79.81^{f}	17.89^{abc}	18.17^{bc}	69^{ab}	63^{bcd}
USMARC 8102w	241.25^{e}	195.25	114.50^{cd}	91.46^{ef}	14.39^{e}	14.83^{e}	69^{ab}	61^{ab}
DAS 2W 042	292.75^{cd}	223.00	133.75^{b}	120.63^{ab}	18.60^{a}	20.09^{a}	69^{ab}	63^{bcd}
USMARC 704w	246.25^{e}	195.75	103.50^{d}	93.98^{de}	15.15^{de}	14.14^{e}	70^{bc}	60^{a}
MM7314w	316.75^{abc}	208.50	140.75^{ab}	110.45^{bc}	18.60^{a}	17.07^{cd}	71^{c}	65^{d}
USMDA 062 Hw	274.50^{d}	210.75	119.75^{c}	112.06^{bc}	16.76^{bcd}	15.60^{de}	70^{bc}	62^{abc}
TCT 112w	321.00^{ab}	223.25	145.75^{a}	117.93^{ab}	17.96^{abc}	16.74^{cd}	68^{a}	63^{bcd}
USMDA 064 Hw	280.75^{d}	201.75	120.50^{c}	104.86^{cd}	16.37^{cd}	17.00^{cd}	68^{a}	60^{a}
30W40	297.25^{bcd}	199.00	144.75^{ab}	111.89^{bc}	19.04^{bc}	18.94^{ab}	71^{c}	64^{a}
F-test	**	ns	**	**	**	**	**	**
C.V. (%)	5.76	8.89	5.79	7.52	6.63	6.31	1.19	2.65

Legend: Means in a column followed with the same letter are not significant with each other at 5% level of significance.
ns - not significant
** - significant at 1% level of significance

Table 4. Analysis of variance on the plant height, ear height and days to silking of 10 white corn hybrids under Claveria condition during wet season (WS) and dry season (DS)

	Plant height		Ear height		Ear length		Days to silking	
	WS	DS	WS	DS	WS	DS	WS	DS
Trt df	9	9	9	9	9	9	9	9
Error df	27	27	27	27	27	27	27	27
Trt MS	3290.6	458.14	1486.96	84.26	10.11	14.74	4.21	10.62
Error MS	273.59	333.28	57.28	64.86	1.32	1.17	0.69	2.70
CV (%)	5.76	8.89	5.79	7.5	6.63	6.31	1.19	2.65

Table 5. Number of ears per plot, number of lodge plants per plot and stand count per plot of the 10 white corn hybrids under Claveria condition during wet season (WS) and dry season (DS)

Treatments	No. of ears/plot		No. of lodge plants/plot	
	WS	DS	WS	DS
TSG 108 w	51^{ab}	51^{ab}	4^{bc}	44^{c}
30W30 (ck)	40	29	4^{bc}	10
USMARC 8102w	50^{bc}	51^{ab}	2^{a}	23^{a}
DAS 2W 042	53^{a}	53^{ab}	5^{c}	47^{c}
USMARC 704w	43	42^{b}	4^{bc}	30^{ab}
MM7314w	48^{c}	50^{ab}	3^{ab}	42^{bc}
USMDA 062 Hw	48^{c}	51^{ab}	2^{a}	45^{c}
TCT 112w	50^{bc}	48^{ab}	5^{c}	38^{bc}
USMDA 064 Hw	52^{ab}	51^{ab}	3^{ab}	36^{bc}
30W40 (ck)	59	58^{a}	4^{bc}	39^{bc}
F-test	**	**	**	**
C.V. (%)	3.61	15.85	52.18	22.84

Legend: Means in a column followed with the same letter are not significant with each other at 5% level of significance.
*- significant at 5% level; ** - significant at 1% level of significance

3.4.1 Plant Height

During the wet season of planting, statistical analysis detected a highly significant difference between treatment means giving 321.5 cm as the tallest for plant height obtained by variety TSG 108w and shortest in variety USMARC 8102w with 241.25 cm. Variation in height can be attributed to its genetic material. Tallest plant height for dry season was obtained in TCT 112w white corn hybrid with average of 223.25 cm and shortest height was

obtained by hybrid USMARC 8102w of 195.25 cm. Further, analysis of variance failed to detect any significant difference between each treatment means.

3.4.2 Ear Height

Results showed a significant difference at 1% level of significance between treatment means for both cropping seasons. As shown in Table 3, TSG 108w showed superiority in all other treatments with average ear height of 167.50 cm, shortest ear height was obtained by hybrid USMARC 704w of 103.50 cm for the 1st cropping. In the 2nd cropping, still TSG 108w leads the group with value of 128.11 cm; shortest ear height measures 79.81cm and was obtained by 30W30.

3.4.3 Ear Length

Results of the study revealed that different white corn hybrids greatly differ in its length of corn ear. Statistical analysis, detected a significant difference at 1% level among treatment means in both cropping seasons. Based on Duncan's Multiple Range Test (DMRT) result, the means differ significantly with each other with 30W30 showing the longest ear of 19.04 cm and USMARC 8102 was the shortest of 14.39 cm for the wet season and DAS 2W042 with 20.09 cm and USMARC 704w with 14.14 cm as the longest and shortest ear, respectively for the dry season cropping.

3.4.4 Days to Silking, DAE

The number of days from seedling emergence to a time when 50% of the plants of a given hybrid have developed silk was monitored. Results revealed that different hybrids vary in the number of days they reach silking stage. Based on the analysis of variance, the number of days to silking varies greatly with the different corn hybrids. The earliest number of days in which corn plants developed silk was 68 days after seed emergence and 71 days as the latest which was obtained by TCT 112w and 30W40, respectively for the 1st cropping period. In the 2nd cropping, USMARC 704 and USMDA 064Hw were the earliest at 60 days and latest to develop silk was MM7314w at 65 days.

3.4.5 Number of Ears Per Plot

The number of ears per plot was taken immediately after harvest. As shown

in Table 6, there is a highly and slight significant difference between treatment means for 1st and 2nd cropping, respectively. DMRT reveals that the number of ears per plot for each hybrid differs with each other with 30W40 having the most number of 59 ears and 30W30 with the least number of ears of 40 for the 1st cropping period. In the 2nd cropping, 30W40 still gave the most number of ears of 58 and 30W30 still has the least number of ears per plot of 29. The difference between treatment means was attributed to the number of stand count per plot, rat infestation and infestations with insects and pests.

Table 6. Analysis of variance on the number of ears per plot and number of lodge plants per plot of 10 white corn hybrids under Claveria condition during wet season (WS) and dry season (DS)

	No. of Ears/plot		No. of Lodge plants/plot	
	WS	DS	WS	DS
Trt df	9	9	9	9
Error df	27	27	27	27
Trt MS	110.88	256.53	14.08	505.94
Error MS	3.17	58.46	1.3	64.83
CV (%)	3.61	15.85	52.18	22.84

3.4.6 Number of Lodge Plants

Lodge plants are of two types, root lodged and stalk lodged, but in this study, only stalk lodged was observed. During the wet season (1st cropping), corn plants suffered stalk lodge but not as severe as in the 2nd cropping. In the 1st cropping, the highest number of lodged plants was only five (5) and was obtained in hybrids DAS 2W042 and TCT 112w and the least was two (2) obtained in USMARC 8102w and USMDA 062Hw. In the 2nd cropping, although it is dry season, there was a severe lodging that occurred in the corn plants. It was in January of 2009 where very high rainfall accompanied by strong winds devastated the corn area resulting to as high as 50 number of plants lodged in some replications. DAS2W042 was observed to have the most number of lodge plants with an average of 47 and 30W30 hybrid showed to be more resistant in lodging with average of 30 plants. Nevertheless, statistical analysis showed significant difference among treatment means for both cropping seasons.

3.4.7 Grain Yield

Data for the average grain yield of the different white corn hybrids is presented in Table 7. In the 1980's, average yield of white corn is only 1.4 mt/ha (National RDE Agenda & Program for Corn, 2003), but in this study it was observed that yield of white corn had reached to as high as 5.95 tons/ha for the wet season & 6.73 tons/ha for dry season cropping. Results of the study revealed that different hybrids gave significant difference among treatment means based on DMRT. In the 1st cropping, grain yield ranged from 3.21 tons/ha to 5.95 tons/ha giving MM7314w the highest yield and USMARC 704w the smallest yield. During the 2nd cropping, though it is termed as dry, but sufficient rain was observed during the period thus giving a grain yield of as high as 6.73 tons/ha and lowest of 3.32 tons/ha which were observed in 30W40 and USMARC8102w, respectively.

3.4.8 Shelling Recovery

The shelling recovery of the ten (10) white corn hybrids is shown in Table 7 and 8. In the 1st cropping, result of the statistical analysis revealed no significant difference on the percentage value among treatments, however, 30W40 gave the highest shelling recovery of 77.90% and lowest was USMARC 704 of 64.27%. Whereas, in the 2nd cropping, 30W30 gave the highest shelling recovery of only 76.50%, lowest shelling recovery was obtained by USMDA 064 Hw with 49.74%. Statistical analysis showed a slight difference among treatment means.

3.5 Cost and Return Analysis of One Hectare Corn Using White Corn Hybrids

The cost and return analysis using 10 hybrids of white corn is shown in Table 9 for the 1st cropping and Table 10 for the 2nd cropping. Total cost of production incurred was based on the prevailing cost of material, labor and hiring rates. All hybrids used in the study incurred equal amount in the cost of production thus the gross income, net income and ROI followed the same trend with the grain yield for both cropping seasons. The cost of corn seeds was not included in the computation of the cost of production since some of the hybrids used are not yet available in the market.

In the 1st cropping, MM7314w gave the highest gross income of 61,285.00, net income of P33,285.00 with return of investment of 1.19 per peso

Table 7. Grain yield (GY) and shelling recovery of the 10 white corn hybrids under Claveria condition during wet season (WS) and dry season (DS)

Treatments	Grain yield, tons/ha		Shelling recovery, %	
	WS	DS	WS	DS
TSG 108 w	5.10^{abc}	5.90^{ab}	69.86	73.71^{ab}
30W30 (ck)	4.69^{bc}	4.73^{cde}	69.14	76.50^{a}
USMARC 8102w	3.34^{d}	3.32^{g}	66.76	62.99^{abc}
DAS 2W 042	4.60^{bc}	5.66^{bc}	68.63	76.16^{ab}
USMARC 704w	3.21^{d}	3.79^{efg}	64.27	69.67^{ab}
MM7314w	5.95^{a}	4.44^{def}	68.51	60.82^{abc}
USMDA 062 Hw	4.59^{bc}	3.68^{fg}	69.40	59.74^{bc}
TCT 112w	5.37^{ab}	5.29^{bcd}	69.47	69.08^{ab}
USMDA 064 Hw	4.14^{cd}	4.68^{cdef}	66.56	49.74^{c}
30W40 (ck)	5.21^{abc}	6.73^{a}	77.90	74.65^{ab}
F-test	**	**	ns	*
C.V. (%)	16.73	13.37	12.62	16.31

Legend: Means in a column followed with the same letter are not significant with each other at 5% level of significance.
* - significant at 5% level; ** - significant at 1% level of significance

Table 8. Analysis of variance on the number of ears per plot and number of lodge plants per plot of 10 corn hybrids under Claveria condition during wet season (WS) and dry season (DS)

	Grain Yield, tons/ha		Shelling recovery, %	
	WS	DS	WS	DS
Trt df	9	9	9	9
Error df	27	27	27	27
Trt MS	3.01	4.68	50.65	308.03
Error MS	0.6	0.42	75.97	120.5
CV (%)	16.73	13.37	12.62	16.31

invested and USMARC 704w gave the lowest gross income of P33,063.00, net income of P5,063.00 with ROI of 0.18 per peso. In the 2nd cropping, 30W40 obtained the highest gross income, net income and ROI of P104,988.00, P73,988.00 & 2.39, respectively, while USMARC 8102w obtained the lowest gross income, net income and ROI of P51,792.00; P20,792.00 & 0.67, respectively.

Table 9. Cost and return analysis of the 10 white corn hybrids under Claveria condition during wet season

Varieties	Grain yield, (tons/ha)	Grain yield, (kg)	Gross income at P10.30/kg	Total cost of production	Net income	ROI
TSG 108 w	5.1	5100	52530	28000	24530	0.88
30W30 (ck)	4.69	4690	48307	29000	20307	0.73
USMARC 8102w	3.34	3340	34402	28000	6402	0.23
DAS 2W 042	4.6	4600	47380	28000	19380	0.69
USMARC 704w	3.21	3210	33063	28000	5063	0.18
MM7314w	5.95	5950	61285	28000	33285	1.19
USMDA 062 Hw	4.59	4590	47277	28000	19277	0.69
TCT 112w	5.37	5370	55311	28000	27311	0.98
USMDA 064 Hw	4.14	4140	42642	28000	14642	0.52
30W40 (ck)	5.21	5210	53663	29000	25663	0.92

Table 10. Cost and return analysis of the different white corn hybrids under Claveria condition during dry season

Varieties	Grain yield, (tons/ha)	Grain yield, (kg)	Gross income at P15.60/kg	Total cost of production	Net income	ROI
TSG 108 w	5.9	5900	92040	31000	61040	1.97
30W30 (ck)	4.73	4730	73788	31000	42788	1.38
USMARC 8102w	3.32	3320	51792	31000	20792	0.67
DAS 2W 042	5.66	5660	88296	31000	57296	1.85
USMARC 704w	3.79	3790	59124	31000	28124	0.91
MM7314w	4.44	4440	69264	31000	38264	1 .23
USMDA 062 Hw	3.68	3680	57408	31000	26408	0.85
TCT 112w	5.29	5290	82524	31000	51524	1.66
USMDA 064 Hw	4.68	4680	73008	31000	42008	1.36
30W40 (ck)	6.73	6730	104988	31000	73988	2 .39

4. Conclusion

A study to evaluate the performance and profitability of different corn hybrids under Claveria condition was conducted at MOSCAT Research Site, Claveria, Misamis Oriental, Philippines. The study used ten (10) white corn hybrids (TSG 108 w, 30W30, USMARC 8102w, DAS 2W 042, USMARC 704w, MM7314w, USMDA 062 Hw, TCT 112w, USMDA 064 Hw, and 30W40) and was replicated four times using the randomized complete block design. Duncan multiple range tests were used to test the significance among treatment means.

The ten (10) white corn hybrids tested vary significantly in their agronomic parameters except for the plant height and stand count during the dry season cropping which showed no significant difference among each treatment means. It signifies that different varieties differ significantly in its genes. The yield and yield components also showed slightly to highly significant difference among the corn hybrids giving MM7314w as the high yielding hybrid with 5.95 tons/ha followed by 30W40 with yield of 5.21 tons/ha during the 1st cropping and 30W40 in the 2nd cropping as the high yielding hybrid of 6.73 tons/ha.

Results showed that different hybrids performed significantly with each other either in agronomic or yield components. The cost and return analysis of the different hybrids of white corn followed the same trend with the grain yield for both cropping seasons. Thus, in the 1st cropping, MM7314w gave the highest gross income of 61,285.00, net income of P33,285.00 with return of investment of 1.19 per peso invested and USMARC 704w gave the lowest gross income of P33,063.00, net income of P5,063.00 with ROI of 0.18 per peso. In the 2nd cropping, 30W40 obtained the highest gross income, net income and ROI of P104,988.00, P73,988.00 & 2.39, respectively while USMARC 8102w obtained the lowest gross income, net income and ROI of P51,792.00; P20,792.00 & 0.67, respectively.

Based on the result of the study, MM7314 corn hybrid was suitable under Claveria, Philippines condition in wet season planting where it gave the highest yield of 5.95 tons/ha whereas, in the dry season planting the check variety which is 30W40 showed to be suitable under Claveria, Philippines condition.

5. Acknowledgement

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6. Reference

The National Research, Development and Extension Agenda and Program for Corn. DA-BAR. 2003.