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Yield Performance of the Different Yellow Corn Hybrids under Claveria Condition

Elizar M. Elmundo*, Charly G. Alcantara and Elpidio R. Bautista
Misamis Oriental State College of Agriculture and Technology (MOSCAT)
Población, Claveria, Misamis Oriental, Philippines
**eli_elmundo57@yahoo.com*

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Abstract

The main objective of the study is to evaluate the performance and profitability of different corn hybrids under Claveria condition. Fifteen hybrids of yellow corn were used. Different yellow corn hybrids vary significantly in their agronomic parameters except for the plant height in the wet season which showed no significant difference among treatment means. The yield and yield components also showed slightly to highly significant difference among the corn hybrids giving NM08A5 as the high yielding hybrid with 7.46 tons/ha during the 1st cropping and NM08A4 in the 2nd cropping as the high yielding hybrid of 9.34 tons/ha. The highest return of investment (ROI) for the 1st cropping was obtained by NM08A5 corn hybrid of 1.98 per peso invested and MM888 gave the lowest ROI of 0.74 per peso. In the 2nd cropping, NM08A4 obtained the highest ROI of 2.76 while MM888 showed to have a losing production of -0.15 computed ROI. Based on the result of the study, NM08A4 and NM08A5 are the two hybrids suitable under Claveria condition. NM08A4 did not get the highest value of yield during the 1st cropping but the difference between their means with NM08A5 was not significantly different based on DMRT. Likewise, NM08A5 did not also give the highest value of yield in the 2nd cropping but still their means between NM08A4 did not also differ significantly.

Keywords: hybrids; performance; profitability

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 total demand for corn grains constantly increases annually because of the growth in the food, feed and industry sectors requiring this commodity. Increased corn production is eyed to support self-sufficiency and enhance food security. The search for options to meet this growing need, such as expansion of the corn growing areas, use of improved technology

including the use of high-yielding and superior varieties to improve productivity is indeed necessary (Ruba *et al*., 1997).

However, Philippine corn industry is 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 (DA-BAR, 2003); thus, this study is conducted to determine which among the hybrids is suitable under Claveria condition. The corn hybrids used in the study are entries for the National Cooperative Test for corn conducted in Claveria under the supervision of the Misamis Oriental State College of Agriculture and Technology (MOSCAT) Research, Development and Extension (RDE) Office. There are 15 yellow corn hybrids used; namely USMARC 8101g, NM08A1,NM08A4, NM08A3, NM08A2, MM888, DAS 20064, PE 8336HTTI, BC 62569, DAS 20059, MM8255, TCT 1353, DK 818, DK 818 RRC2, and NM 08A5.

The main objective of the study is to evaluate the adaptability of the different yellow corn hybrids in Claveria condition. Specifically, it aims to evaluate the agronomic parameters of the different corn hybrids, compare its yield performance and profitability; and determine which hybrids are suitable and productive under Claveria condition.

2. Methodology

The methodology used in the study is based on the National Cooperative Test for corn conducted in MOSCAT Research Site, Claveria, Misamis Oriental. The land used in the study is well-drained, more or less uniform in soil fertility, slightly sloping, and thoroughly prepared. 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 measures 3.0 meters (m) in width and 5.0 m in length. This size of plot accommodated 4 rows 0.75 centimeters (cm) apart. The two inner rows with a total of 52 hills were used as data rows.

2. 1 Yellow Corn Hybrids Used

The following yellow corn hybrids were used in the study.

USMARC 8101g	NM08A1	NM 08A5	DK818 RRC2
NM08A4	NM08A3	DK 818	TCT 1353
NM08A2	MM888	MM8255	DAS 20059
DAS 20064	PE 8336HTTI		BC 62569

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 side dressing the remaining nitrogen, to cover the fertilizer with soil and to further control the weeds.

2.3 Fertilization

The recommended nitrogen (N) was applied in split amount, one-third at planting and the rest was side dressed 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. Fertilizers were 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 grams/row

2.4 Data Gathered

2.4.a Agronomic Data

1) Silking days is the number of days from seedling emergence to a time when 50% of the plants of a given entry have tasseled.
2) Plant height (cm) is the average height of 20 random plants, measured from ground level to the base of the tassel.

3) Ear height (cm) is the average ear height of 20 random plants, measured from ground level to the node bearing the lower ear.
4) Stand count is the total number of plants in the two inner rows taken before harvesting.
5) Lodged plants (stalk lodged) is the number of plants with lodged stalks before harvest or at the time stand count.
6) Ear length (cm) is the average of 20 ears harvested at random from each plot.
7) Number of ears harvested/plot is the number of actual ears harvested per plot.
8) Ear weight is the fresh weight of the total number of ears harvested from two inner rows or plot (dehusked ears).
9) Disease rating is the rate given in a scale of 1-5; with 1 as highly resistant; 3 as susceptible and 5 as highly susceptible to diseases.

2.4.b Yield Determination

1. Moisture content - this was measured using Moisture Tester.
2. Grain yield – grain yield was computed using the following formula:

$$\text{Yield (kg/ha)} = a \times \frac{b}{c} \times \frac{100\% - \%\,MC}{85} \times \frac{GW}{EW} \quad (1)$$

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

3. Shelling percentage – the shelling percentage was computed using the formula:

Shelling percentage = Weight of shelled grain / Total weight of dehusked ear X 100

2.4.c Cost and Return Analysis

The cost and return of plants per hectare were 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.d General Description of the Study Area

Table 1 shows the general description of the area and the parameters used.

Table 1. General description 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 were 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 on January 2009 causing almost of the plants to lodge. The mean annual rainfall of the area is 258.13 mm in 2008 and 281.83 mm on January to March 2009 (Figure 1).

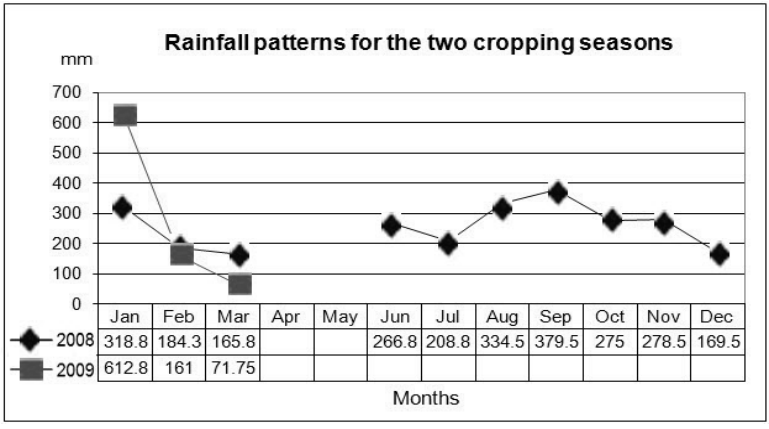
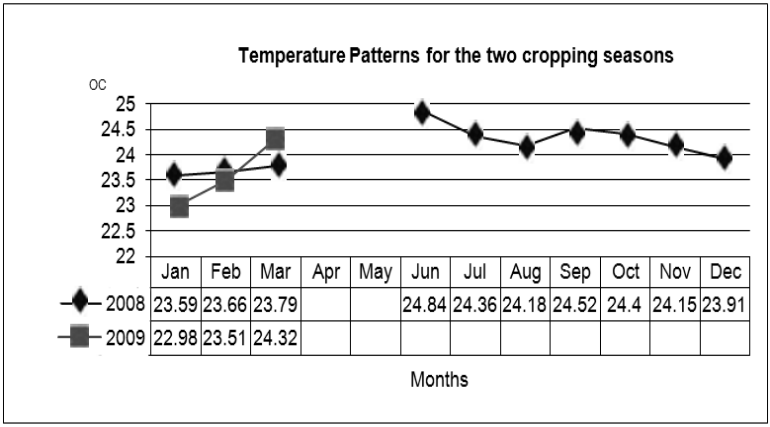


Figure 1. Rainfall pattern of MOSCAT Poblacion, Claveria, Misamis Oriental during wet season 2008 and dry season 2008-2009

The mean annual average temperature in the area is 24.14^{0}C for the year

2008 and 23.60^{0}C for January-March of 2009 (Figure 2). Lowest temperature occurs during the month of January with 23.59^{0}C while the hottest month was September with average temperature of 24.52^{0}C. Rainfall affects greatly for any crop production. MOSCAT 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	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	23.59	23.66	23.79			24.84	24.36	24.18	24.52	24.4	24.15	23.91
2009	22.98	23.51	24.32									

Figure 2. Temperature 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 diseases and pest attacking the different yellow 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. All hybrids are highly resistant to stalk rot for both wet and dry season. For earworm, all other hybrids turned out to be resistant except for MM888 which was highly susceptible. All hybrids were affected with ear rot for the 1st cropping while in 2nd cropping, some hybrids like NM08A4, NM08A2, NM08A5 and DK818 RRC2 turned out to be resistant to such disease.

3.3 Plant Height, cm

The plant height was measured from ground level to the base of the tassel using the 20 random plants. Tallest plant is TCT 1353 yellow corn hybrid with average of 318 cm and shortest plant is USMARC 8101g with average of 259.25 cm. in the wet season. Statistical analysis showed no significant

difference between treatment means. During the dry season, statistical analysis showed significant difference between treatment means at 1% level of significance with NM08A4 hybrid having the tallest plant height of 257.5 cm and the shortest TCT 1353 hybrid. Different yellow corn hybrids significantly differ in height due to its genetic material and its level of adoption to the environment.

Table 2. Rate of diseases and pest present in the different yellow corn hybrids under Claveria condition during wet and dry season

Treatments	Stalk rot		Ear worm		Ear rot	
	WS	DS	WS	DS	WS	DS
USMARC 8101g	1	1	1	1	3	3
NM08A4	1	1	1	1	3	1
NM08A2	1	1	1	1	3	1
DAS 20064	1	1	1	1	3	3
BC 62569	1	1	1	1	3	3
MM8255	1	1	1	1	3	3
DK 818	1	1	1	1	3	3
NM 08A5	1	1	1	1	3	1
NM08A1	1	1	1	1	3	3
NM08A3	1	1	1	1	3	3
MM888	1	1	5	5	5	5
PE 8336HTTI	1	1	1	1	3	3
DAS 20059	1	1	1	1	3	3
TCT 1353	1	1	1	1	3	3
DK 818 RRC2	1	1	1	1	5	1

Scale: 1 - highly resistant; 3 - susceptible; 5- highly susceptible

3.4 Ear Height, cm

Likewise, ear height was also measured from ground level to the node bearing the lower ear still using the 20 random plants. Results showed significant difference between treatment means (at 1% level of significance) for the two cropping seasons. BC 62569 gave the tallest ear height of 148.25 cm and USMARC 8101g as the shortest with average ear height of 107 cm for the wet season. During the 2nd cropping, still BC 62569 hybrid was found to have the tallest ear height of 140.5 cm and TCT 1353 as the shortest at 90.75 cm. Different varieties differ in genes and the level of adoption to the environment.

3.5 Ear Length, cm

Different corn hybrids greatly differ in its length of corn ear. Based on DMRT result, the means differ significantly with each other with NM08A3

showing the longest ear length of 20.94 cm and NM08A2 as the shortest of 1721 cm for the wet season and NM08A5 with 20.65 cm and BC 62569 with 14.7 cm as the longest and shortest ear length, respectively for the dry season cropping.

3.6 Days to Silking, DAE

The number of days from seedling emergence to a time when 50% of the plants of a given hybrid had developed silk was monitored. Statistical analysis showed that this parameter was greatly affected with the different corn hybrids.

The earliest number of days in which corn plants developed silk was 60 days after seed emergence and 66 as the latest and was exhibited by MM888 and TCT 1353, respectively for the 1st cropping period. In the 2nd cropping, still MM888 and DAS 20059 were the earliest and latest to develop silk, respectively.

Agronomic and yield parameters of the different yellow corn hybrids are presented in Tables 3, 4 and 5.

3.7 Number of Ears per Plot

The number of ears per plot was taken immediately after harvest. As shown in Table 4, there is a significant difference between treatment means at 1% level of significance. DMRT revealed that the number of ears per plot of each hybrid differ with each other with DAS 20064 having the most number of 54 ears and NM08A4 with the least number of ears of 36 for the 1st cropping period. In the 2nd cropping, DK 818 gave the most number of ears at 57 and BC 62569 and MM888 having the least number of ears per plot at 34. The difference between treatment means was attributed to the number of stand count per plot.

Table 3. Plant height, ear height, ear length and days to silking of the different yellow corn hybrids under Claveria condition during wet and dry season.

Treatments	Plant height cm		Ear height cm		Ear length cm		Days to silking DAE	
	WS	DS	WS	DS	WS	DS	WS	DS
USMARC 8101g	259.25	219.25 a	107.00 f	94.50 b	18.39 de	19.23 ab	65 de	64 b
NM08A4	291.00	257.50 a	130.25 bcd	133.50 ab	19.55 abcd	19.95 ab	64 d	65 b
NM08A2	294.00	248.75 ab	114.75 ef	113.25 ab	17.21 e	17.55 abc	63 cd	64 b
DAS 20064	311.75	250.75 a	138.25 abc	120.75 ab	20.24 abc	19.10 abc	63 cd	63 ab
BC 62569	292.50	217.00 d	148.25 a	140.50 a	17.24 e	14.70 c	64 d	65 b
MM8255	266.75	223.00 cd	115.25 ef	100.75 ab	18.89 bcde	18.48 abc	65 e	65 b
DK 818	275.75	231.75 c	127.75 cde	124.00 ab	17.75 de	16.88 abc	61 ab	61 a
NM 08A5	286.75	240.50 b	139.75 abc	129.25 ab	20.54 a	20.65 a	64 d	65 b
NM08A1	295.50	239.50 b	118.50 de	111.75 ab	18.02 de	18.80 abc	62 bc	63 ab
NM08A3	296.50	236.75 bc	121.50 de	114.25 ab	20.94 a	19.15 abc	64 d	64 b
MM888	286.50	225.00 cd	120.50 de	108.50 ab	18.00 de	15.75 bc	60 a	60 a
PE 8336HTTI	290.00	247.50 ab	137.50 abc	126.00 ab	18.40 cde	18.93 abc	64 d	63 ab
DAS 20059	289.25	222.00 cd	141.50 ab	123.00 ab	18.10 de	16.63 abc	66 e	65 b
TCT 1353	318.00	214.50 d	118.00 def	90.75 b	18.02 de	17.68 abc	60 ab	61 a
DK 818 RRC2	277.50	224.00 cd	123.25 de	111.50 ab	18.87 bcde	16.80 abc	64 d	63 ab
F-test	ns	**	**	**	**	**	**	**
C.V. (%)	10.75	4.08	6.52	11.27	6.51	4.38	1.47	2.01

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

3.8 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 2nd cropping. In the 1st cropping, the highest number of lodged plants was five (5) and was observed in hybrids NM08A2, MM8255, NM08A5 and NM08A1. BC62569 has only one (1) lodged plant, giving the least number. In the 2nd cropping, although it was dry season, there was a severe lodging that occurred in the corn plants. It was in January of 2009 when very high rainfall accompanied by strong winds devastated the corn area resulting to as high as 42 lodged plants in some replications. DAS20059 was observed to have the most number of lodged plants at 29 and NM08A2 hybrids showed to be resistant in lodging. Statistical analysis showed significant difference among treatment means.

Table 4. Number of ears and number of lodge plants per plot of the different yellow corn hybrids under Claveria condition during wet and dry season

Treatments	No. of ears/plot		No. of lodge plants/plot	
	WS	DS	WS	DS
USMARC 8101g	52 ab	51 abc	3 bc	22
NM08A4	36 f	51 abc	4 c	9 b
NM08A2	45 abcde	50 abcd	5 c	6 a
DAS 20064	54 a	53 abc	4 c	18 e
BC 62569	51 ab	34 d	1 a	27 f
MM8255	48 abc	42 bcd	5 c	15 cd
DK 818	45 bcdef	57 a	4 c	15 cd
NM 08A5	46 bcde	51 abc	5 c	10 b
NM08A1	39 def	50 abcd	5 c	6 a
NM08A3	38 ef	52 abc	3 bc	28 f
MM888	42 cdef	34 d	2 ab	17 de
PE 8336HTTI	39 def	54 ab	4 c	17 de
DAS 20059	51 ab	38 cd	4 c	29 f
TCT 1353	42 cde	51 abc	2 ab	19 e
DK 818 RRC2	47 abcd	55 ab	3 bc	14 c
F-test	**	*	**	*
(%)	12.08	19.89	34.72	36.44

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

3.9 Grain Yield, tons/ha

Data for the average grain yield of the different yellow corn hybrids is presented in Table 5. It can be noted that different hybrids gave significant

difference among treatment means based on DMRT. In the 1st cropping, grain yield ranges from 4.35 tons/ha to 7.46 tons/ha giving NM 08A5 the highest yield and MM888 with the smallest yield. During the 2nd cropping, although it was supposed to be a dry season, sufficient rain was observed during the period thus giving a grain yield of as high as 9.34 tons/ha and lowest at 2.1 tons/ha which were observed in NM08A4 and MM888, respectively. Different hybrids have different growth characteristics (Rodriguez, *et al.*, 2004).

Table 5. Grain yield and shelling recovery of the different yellow corn hybrids under Claveria condition during wet and dry season

Treatments	Grain yield (tons/ha)		Shelling recovery (%)	
	WS	DS	WS	DS
USMARC 8101g	5.86 bcdef	5.53 def	66.91 de	62.47 cde
NM08A4	6.36 abcd	9.34 a	67.44 ef	78.85 bcde
NM08A2	5.29 def	6.41 cde	64.97 bc	65.99 cde
DAS 20064	7.02 ab	5.48 def	66.71 d	68.42 e
BC 62569	6.99 abc	4.90 f	68.25	73.58 de
MM8255	5.42 def	4.97 ef	64.65 cd	67.14 abc
DK 818	5.97 bcdef	6.58 cd	72.62 ab	76.07 abc
NM 08A5	7.46 a	9.19 ab	68.26 fg	75.92 de
NM08A1	5.86 bcdef	8.36 ab	64.08 d	70.42 de
NM08A3	5.62 cdef	7.03 bc	61.72 de	65.88 cde
MM888	4.35 def	2.10	70.19 fg	57.75 ab
PE 8336HTTI	5.24 def	6.80 cd	66.70 d	70.25 bcde
DAS 20059	4.85 ef	5.89 cdef	65.49 a	68.56 cde
TCT 1353	5.51 def	5.65 cdef	71.20 bc	71.58 abc
DK 818 RRC2	5.85 bcdef	6.58 cd	70.41 ab	76.29 a
F-test	**	**	*	**
C.V. (%)	10.63	14.34	10.07	8.62

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

3.10 Shelling Recovery

The shelling recovery of the different yellow corn hybrids is shown in Table 6. In the 1st cropping, statistical analysis revealed a very slight difference on the percentage value among treatments with NM08A3 having the lowest value of 61.72% and DK818 has the highest with shelling percentage of 72.62%. Whereas, in the 2nd cropping, still MM888 gave the lowest shelling recovery of only 57.75 which also resulted to very low yield; while NM08A4 obtained the highest shelling recovery of 78.85%. Statistical analysis showed a great difference among treatment means.

3.11 Cost and Return Analysis of One Hectare Corn Using Different Yellow Corn Hybrids

The cost and return analysis using different hybrids of yellow corn are shown in Table 6 for the 1st cropping and Table 7 for the 2nd cropping. Total cost of production incurred was based on the prevailing cost of material, labor and hiring rates. In the 1st cropping, NM08A5 gave the highest gross income of P91,012.00, net income of P60,512.00 with return of investment of 1.98 per peso invested and MM888 gave the lowest gross income of P53,070.00, net income of P22,570.00 with ROI of 0.74 per peso. In the 2nd cropping, NM08A4 obtained the highest gross income, net income and ROI of P126,090.00, P92,590.00 and 2.76, respectively while MM888 showed to have a losing production of -0.15 computed ROI.

Table 6. Cost and return analysis of the different yellow corn hybrids under Claveria condition during wet season

Hybrids	Grain yield (tons/ha)	Grain yield in kg	Gross income at P12.20/kg	Total cost of production	Net income	ROI
USMARC 8101y	5.86	5,860.00	71,492.00	30,500.00	40,992.00	1.34
NM08A4	6.36	6,360.00	77,592.00	30,500.00	47,092.00	1.54
NM08A2	5.29	5,290.00	64,538.00	30,500.00	34,038.00	1.12
DAS 20064	7.02	7,020.00	85,644.00	30,500.00	55,144.00	1.81
BC 62569	6.99	6,990.00	85,278.00	30,500.00	54,778.00	1.80
MM 8255	5.42	5,420.00	66,124.00	30,500.00	35,624.00	1.17
DK 818 (ck)	5.97	5,970.00	72,834.00	31,000.00	41,834.00	1.35
NM 08A5	7.46	7,460.00	91,012.00	30,500.00	60,512.00	1.98
NM 08A1	5.86	5,860.00	71,492.00	30,500.00	40,992.00	1.34
NM 08A3	5.62	5,620.00	68,564.00	30,500.00	38,064.00	1.25
MM 888	4.35	4,350.00	53,070.00	30,500.00	22,570.00	0.74
PE 8336 HTTI	5.24	5,240.00	63,928.00	30,500.00	33,428.00	1.10
DAS 20059	4.85	4,850.00	59,170.00	30,500.00	28,670.00	0.94
TCT 1353	5.51	5,510.00	67,222.00	30,500.00	36,722.00	1.20
DK 818 RRC2	5.85	5,850.00	71,370.00	32,000.00	39,370.00	1.23

Table 7. Cost and return analysis of the different yellow corn hybrids under Claveria condition during dry season

Hybrids	Grain yield (tons/ha)	Grain yield in kg	Gross income at P13.5/kg	Total cost of production	Net income	ROI
USMARC 8101y	5.53	5,530.00	74,655.00	33,500.00	41,155.00	1.23
NM08A4	9.34	9,340.00	126,090.00	33,500.00	92,590.00	2.76
NM08A2	6.41	6,410.00	86,535.00	33,500.00	53,035.00	1.58
DAS 20064	5.48	5,480.00	73,980.00	33,500.00	40,480.00	1.21
BC 62569	4.9	4,900.00	66,150.00	33,500.00	32,650.00	0.97
MM 8255	4.97	4,970.00	67,095.00	33,500.00	33,595.00	1.00
DK 818 (ck)	6.58	6,580.00	88,830.00	34,000.00	54,830.00	1.61
NM 08A5	9.19	9,190.00	124,065.00	33,500.00	90,565.00	2.70
NM 08A1	8.36	8,360.00	112,860.00	33,500.00	79,360.00	2.37
NM 08A3	7.03	7,030.00	94,905.00	33,500.00	61,405.00	1.83
MM 888	2.1	2,100.00	28,350.00	33,500.00	(5,150.00)	-0.15
PE 8336 HTTI	6.8	6,800.00	91,800.00	33,500.00	58,300.00	1.74
DAS 20059	5.89	5,890.00	79,515.00	33,500.00	46,015.00	1.37
TCT 1353	5.65	5,650.00	76,275.00	33,500.00	42,775.00	1.28
DK 818 RRC2	6.58	6,580.00	88,830.00	37,300.00	51,530.00	1.38

4. Conclusion and Recommendation

The yield performance of 15 different yellow corn hybrids was evaluated under Claveria condition in wet (2008) and dry season (2008-2009). The main objective is to evaluate the performance and profitability of different corn hybrids under Claveria condition. A Randomized Complete Block Design was used in the study. Results showed that different yellow corn hybrids vary significantly in their agronomic parameters except for the plant height in the wet season which showed no significant difference among treatment means. The yield and yield components also showed significant difference among the corn hybrids giving NM08A5 as the high yielding hybrid with 7.46 tons/ha during the 1st cropping and NM08A4 in the 2nd cropping as the high yielding hybrid of 9.34 tons/ha. The genetic material of the different hybrids is one of the causes of the differences in yield. The highest return of investment for the 1st cropping was obtained by NM08A5 corn hybrid of 1.98 per peso invested and MM888 gave the lowest ROI of 0.74 per peso. In the 2nd cropping, NM08A4 obtained the highest ROI of 2.76 while MM888 showed to have a losing production of -0.15 computed ROI.

Based on the result of the study, NM08A4 and NM08A5 are the two hybrids suitable under Claveria condition. Although NM08A4 did not get the highest value of yield during the 1st cropping, the difference between their means with NM08A5 was not significantly different based on DMRT. Likewise, NM08A5 did not also give the highest value of yield in the 2nd cropping however their means between NM08A4 did not also differ significantly.

5. Acknowledgement

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