

BIBLIOGRAPHY

KIMHAI, SEFREDO M. APRIL 2013. Performance of Six Varieties of Chinese Cabbage (*Brassica pekinensis*) under Paoay, Atok, Benguet Condition, Benguet State University, La Trinidad Benguet.

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ABSTRACT

This study on the performance of Chinese cabbage varieties, namely: Green Cool, Taibyo Nozomi, Vigor 60, Yellow Queen, CR-Chesney and CR- Alabama was conducted under Paoay, Atok, Benguet Condition to evaluate the yield performance and to determine the economics of growing these varieties.

Results revealed that CR-Alabama out yielded the other varieties in terms of percentage heading, average head weight, marketable yield per plot and it had very compact head formation compared to the other cultivars and it was resistant to insect pest under Paoay, Atok, Benguet condition.



RESULTS AND DISCUSSION

Days to Heading

The varieties, CR-Alabama, CR-Chesney and Green Cool were significantly the earliest to form head, while Taibyo Nozomi formed head at the latest, but it is not significantly different from the check cultivar Green Cool.

This is consistent with the statement of work and Carew (1955) that varietal trial is important to observe earlier and maturity of different varieties.

Table 1. Number of days from planting to head formation

VARIETY	MEAN (days)
Green Cool	88.00 ^d
Taibyo Nozomi	96.00 ^a
Vigor 60	90.67 ^b
Yellow Queen	90.00 ^c
CR- Chesney	88.00 ^d
CR- Alabama	88.00 ^d

Means with the same letter are not significantly different at 5% level by DMRT



Equatorial Diameter of Head

Widest equatorial diameter of heads was measured from CR-Alabama which is significantly different from other cultivars, while CR-Chesney had the least equatorial diameter among the test cultivars.

These observations agree with the statement of Work and Carew (1955) that different varieties have wide range of difference in plant size.

Table 2. Equatorial diameter of heads (cm)

VARIETY	MEAN (cm)
Green Cool	18.50 ^b
Taiby Nozomi	16.58 ^c
Vigor 60	16.67 ^c
Yellow Queen	17.03 ^c
CR- Chesney	14.00 ^d
CR- Alabama	19.60 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Polar Diameter of Head

In terms of length Green Cool produced significantly longer heads compared to the rest of cultivars planted, while Yellow Queen had the least polar diameter of head among the test cultivars.

These observations agree with the statement of Work and Carew (1955) that different varieties have wide range of difference in plant size.

Table 3. Polar diameter of heads (cm)

VARIETY	MEAN (cm)
Green Cool	34.10 ^a
Taiby Nozomi	29.33 ^c
Vigor 60	29.53 ^c
Yellow Queen	26.50 ^d
CR- Chesney	30.23 ^c
CR- Alabama	32.10 ^b

Means with the same letter are not significantly different at 5% level by DMRT



Average Weight of Heads

In terms of average head weight the heaviest was harvested from CR-Alabama that significantly out yielded the rest cultivars, while CR- Chesney had the lowest average head weight.

Variety trial is a very important study in order to obtain the best variety adapted to a certain locality.

Table 4. Average head weight (kg)

VARIETY	MEAN (kg)
Green Cool	1.61 ^b
Taiby Nozomi	1.21 ^d
Vigor 60	1.41 ^c
Yellow Queen	1.21 ^d
CR- Chesney	1.02 ^e
CR- Alabama	1.82 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Percentage of Heading

Statistical analysis shows that CR-Alabama had significantly higher percentage of heading compared to the other cultivar tested, while Taiby Nozomi had the lowest percentage of heading.

Table 5. Percentage of heading

VARIETY	MEAN
Green Cool	64.58 ^b
Taiby Nozomi	16.67 ^d
Vigor 60	35.94 ^c
Yellow Queen	30.21 ^c
CR- Chesney	71.35 ^b
CR- Alabama	86.46 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Head Weight as to Compactness

Among the varieties tested, Green Cool, Vigor 60, CR-Alabama and CR-Chesney significantly had lower weight of no heads that did not form. There were no significant differences observed from test cultivars on the weight of loose and slightly compact heads. Green Cool, Vigor 60, CR-Chesney and CR-Alabama have significantly higher weight of compact head formation among the test cultivar. Very compact heads were significantly greater in CR-Alabama among the tested cultivars.

Table 6. Weight of heads according to compactness

VARIETY	MEAN (kg)				
	NO HEAD FORMED	LOOSE	SLIGHTLY COMPACT	COMPACT	VERY COMPACT
Green Cool	0.50 ^b	1.00 ^a	1.33 ^a	8.33 ^a	58.33 ^b
Taibyo Nozomi	2.33 ^a	1.67 ^a	3.00 ^a	3.00 ^b	9.83 ^e
Vigor 60	0.67 ^b	1.00 ^a	1.67 ^a	6.33 ^a	25.67 ^d
Yellow Queen	2.67 ^a	3.00 ^a	3.00 ^a	3.67 ^b	18.67 ^{de}
CR- Chesney	0.33 ^b	1.00 ^a	3.33 ^a	6.67 ^a	38.67 ^c
CR- Alabama	0.67 ^b	0.67 ^a	2.67 ^a	8.00 ^a	89.00 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Marketable Yield Per Plot

Marketable yield was significantly greater in CR-Alabama at 97.95 kg per 1x10 m plot, while lowest marketable yield was obtained from Yellow Queen and Taiby Nozomi.

Table 7. Marketable yield per plot (kg)

VARIETY	MEAN (kg)
Green Cool	66.77 ^b
Taiby Nozomi	12.87 ^e
Vigor 60	32.85 ^d
Yellow Queen	22.88 ^{de}
CR- Chesney	46.01 ^c
CR- Alabama	97.95 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Non-marketable Yield Per Plot

High non marketable yield was observed in cultivars Taiby Nozomi and Yellow Queen compared to the other cultivars.

Table 8. Non marketable yield per plot (kg)

VARIETY	MEAN (kg)
Green Cool	0.33 ^b
Taiby Nozomi	3.83 ^a
Vigor 60	0.50 ^b
Yellow Queen	4.83 ^a
CR- Chesney	0.33 ^b
CR- Alabama	0.27 ^b

Means with the same letter are not significantly different at 5% level by DMRT



Computed Marketable Yield

Among the varieties evaluated, CR-Alabama had significantly the highest computed marketable yield at 98.12 t/ha having the highest average head weight, while Taiby Nozomi had the lowest computed marketable yield at 12.87 t/ha.

Table 9. Computed marketable yield (t/ha)

VARIETY	MEAN (t/ha)
Green Cool	66.67 ^b
Taiby Nozomi	12.87 ^e
Vigor 60	32.85 ^d
Yellow Queen	22.88 ^{de}
CR- Chesney	46.01 ^c
CR- Alabama	97.95 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Total Yield

In total yield, CR-Alabama was significantly higher at 102.64 kg per 1x10 m plot compared to the rest of cultivars, while Taibyo Nozomi had the lowest total yield at 14.34 kg per 1x10 per plot.

Table 10. Total yield (kg)

VARIETY	MEAN (kg)
Green Cool	66.81 ^b
Taibyo Nozomi	14.34 ^e
Vigor 60	32.85 ^d
Yellow Queen	27.42 ^d
CR- Chesney	46.25 ^c
CR- Alabama	98.12 ^a

Means with the same letter are not significantly different at 5% level by DMRT



Weight of Heads Infested with Diamond Back Moth

Taiby Nozomi had the highest insect pest incidence but it is not significantly different with Yellow Queen varieties. Green Cool, CR-Chesney, CR-Alabama was observed to be tolerant to diamond back moth.

As explained by Wallace (1969), each variety is different but small sample of the total number of genes existing for the vegetable crop. Unimproved varieties usually carry an unselected and essentially random sample of genes, while improved varieties passes highly selected genes that established high potential for yield pest resistance and other characteristics which are so essential to profitable vegetable production. It might be that those cultivars observed to be resistant have more genes resistant to diamond back moth compared to those that were rated susceptible.

Table 12. Weight of heads with diamond back moth damaged (kg)

VARIETY	MEAN (kg)
Green Cool	0.17 ^c
Taiby Nozomi	3.83 ^a
Vigor 60	1.00 ^{bc}
Yellow Queen	2.67 ^{ab}
CR- Chesney	0.50 ^c
CR- Alabama	0.17 ^c

Means with the same letter are not significantly different at 5% level by DMRT



Shelf Life

Longest shelf life was observed in Taibyo Nozomi and CR-Chesney, while shortest shelf life was observed from Yellow Queen.

Table 13. Shelf life (Days)

VARIETY	MEAN (Days)
Green Cool	27.00 ^d
Taibyo Nozomi	34.67 ^a
Vigor 60	30.00 ^c
Yellow Queen	20.00 ^e
CR- Chesney	34.67 ^a
CR- Alabama	31.00 ^b

Means with the same letter are not significantly different at 5% level by DMRT



Table 14. Cost and return analysis

PARTICULAR	CULTIVAR					
	GREEN COOL	TAIBYO NOZOMI	VIGOR 60	YELLOW QUEEN	CR- CHESNEY	CR- ALABAMA
MARKETABLE	200.32	38.52	97.54	68.65	138.04	293.85
*A. SALES	3,004.8	577.8	1,463.1	1,029.75	2,070.6	4,407.75
B.EXPENSES						
1. SEEDS	78.75	70	91.25	86.25	91.25	87.5
2. FERTILIZERS						
- Chicken Manure	100	100	100	100	100	100
-14-14-14	100	100	100	100	100	100
3. INSECTICIDE						
- Paspas	95.83	95.83	95.83	95.83	95.83	95.83
- Bida	78	78	78	78	78	78
4.FUNGICIDE						
- Redeem	83.33	83.33	83.33	83.33	83.33	83.33
5. REGULAR GASOLINE	74.58	74.58	74.58	74.58	74.58	74.58
6. LABOR	75	75	75	75	75	75
7. TRANS- PORTATION	333.33	333.33	333.33	333.33	333.33	333.33
TOTAL EXPENSES	958.82	950.07	971.32	966.32	971.32	967.57
C.NET PROFIT	2,045.98	372.27	491.78	63.43	1,099.28	3,440.18
D.ROI (%)	213.39	-39.16	50.63	06.56	113.17	355.55
RANK	2	6	4	5	3	1

* The selling price during the harvest was P15.00 per kilogram



SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

The study was conducted to evaluate the yield performance of six (6) Chinese cabbage varieties under Paoay, Atok, Benguet condition from October to January 2013.

Results shows that cultivar CR-Alabama significantly had, the highest percentage of heading, and the widest equatorial diameter, while cultivar Taiby Nozomi and Yellow Queen had the longest shelf life.

High average weight, marketable weight, total weight, and computed plant per yield at 97.95 t/ha was significantly obtained in cultivar CR-Alabama. Moreover, this said variety had very compact heads and it is resistant to insect pest diamond back moth.

Conclusion

Based on the results of the study, it is therefore concluded that among the varieties tested, cultivar CR-Alabama planted under Paoay, Atok, Benguet condition had the highest average weight of heads, highest percentage of heading, highest head weight as to compactness, highest marketable yield per plot and highest ROI.

Recommendation

In terms of having high yield, resistant to insect pest and large heads, Chinese cabbage 'CR-Alabama' is recommended to be grown under Paoay. Atok, Benguet condition.



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