BIBLIOGRAPHY

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ABSTRACT

The study was conducted to determine the growth and yield of ten potato varieties grown from stem cuttings, to determine the best potato variety based on yield and resistance and to determine the profitably of growing rooted stem cuttings in Buguias, Benguet.

The Igorota varieties was produced the highest total yield per plot (kg/5m^2) and computed yield pre hectare (t/ha) and had the highest return on cash expenses. The results were comparable with Po4 and Ganza varieties.

In terms, of resistant on insect pest and disease, Igorota, Po4 and Ganza were highly resistant varieties and the others were moderately resistant. In Buguias, Benguet Igorota, Po4 and Ganza grown from rooted stem cuttings could be planted. However, to attain optimum yield favorable condition for potato production should observed.

INTRODUCTION

Potato is one of the crops that is being grown intensively in the highlands. It is one of the principal sources of income of farmers in Benguet and some parts of Mt. Province. The favorable climate and soil type are the primary factors favoring the growth and development of the crop leading to good yield (Smith, 1977).

However, the potato industry today is experiencing a reduction of yield due to the planting materials currently used by farmers. The traditional practice of most potato growers is to keep the small seed tubers for planting. These planting materials, however, are not tested periodically for build-up of systemic diseases caused by microorganisms. This practice has been ongoing year by year leading to low yields (HARRDEC, 1997). In addition, farmers plant the same variety in the same area in every planting season.

The success of a good potato production depends on a high yielding and adapted variety and with the use of good quality planting materials. Healthy planting materials usually produce high yield and quality tubers.

Planting potato using stem cuttings would greatly reduce the cost in producing, storing, and planting of tubers. The disease transmission in potato seed tubers will also be minimized (Gayao *et al.*, 1987). In addition, rooted stem cuttings are also readily available at 8 to 15 days from cutting as compared to the 4 to 6 months dormancy of seed tubers (Dalang *et al.*, 1990).

The study was conducted to:

1. determine the growth and yield of potato varieties using stem cuttings in Buguias, Benguet;

2. identify the best potato variety based on yield and resistance; and

3. determine the profitability of growing potato rooted stem cuttings in Buguias, Benguet.

The study was conducted at Baculongan Sur, Buguias, Benguet from November 2012 to February 2013.

REVIEW OF LITERATURE

Varietal Evaluation of Potato in the Highlands

The first decision in planting potato is to know the best variety of plant to achieve maximum production, the best variety that is adapted to the locality should be selected. Excellent cultural management practice may not compensate to poor choice of variety. In order to determine the best suited variety a series of varietal evaluation must be conducted to determine the performance of a new or previously untried variety (HARRDEC, 1996).

HARRDEC (1996) reported that achieving maximum production requires the best variety to be selected in the locality. Series of varietal evaluation must be conducted in order to determine the adapted variety and the performance of newly introduced varieties.

According to Horton (1987), potatoes are grown in higher elevation than any other major crops. In the tropics the typical mountain areas that produce potatoes is cold, best temperature fluctuated sharply from day to night. And the average relative humidity is high. Soils are well drained, but there is great variation in altitude, slope, soil fertility and other environmental variable that influence yields. Production hazards like frost causes low yield in highland areas, where the chances of crop failure are great, farmers often economic to purchase inputs in order to minimize their financial risks.

According to Beukema (1995), clone selection and evaluation is important in a breeding program. Procedures involve the production of healthy good looking plants, resistance to pest and disease and high yielding. Tubers of each selected varieties harvested and kept separate to be planted in the next trials. Plants are carefully inspected for any abnormalities. First generation (F1), which is found to have same abnormalities are rejected and removed away from fields.

Sunil (1990) stated that varietal evaluation is a process in plant breeding, which provides comparison of promising lines develop by breeders. It is though varietal evaluation that a breeder selects the best performing variety among develops lines in terms of yield, quality, stress, adaptability and resistance to pest and diseases. Furthermore, selecting the right variety will minimize problems associated with water and fertilizer management. The variety to be selected should be high yielding, pest and disease resistant and hence, ensure more profit.

The Use of Stem Cuttings

Demonterverde (1992) emphasized that the use of RMT, like Rooted Stem Cutting has a great potential for the multiplication of pathogen tested either in vitro from a protected green house. The method promotes faster introduction of new cultivars reduce field exposure during early stage of seed production ensures higher seed quality and a promising for germplasm evaluation. Several on farms trials showed that the used of cutting of certain cones be on efficient, profitable and low cost method for potato production.

Dalang *et al.,* (1990) as cited by Lingaling (2002) stated that stem cutting as a Rapid Multiplication Technique (RMT) for potato yield more planting materials than the traditional use of seed tubers.

Montierro *et al*., (1986) reported that the use of stem cutting as planting materials is a very promising tool for low cost potato production. It also enables the rapid and timely increase of new cultivars and prevent possible occurrence of tuber borne diseases. It is a source of clean and healthy planting materials, however labor requirement are increased.

Escobar and V. Zaag (1985) as cited by Maday-a (1998) emphasized that the use of stem cutting in developing countries like Asia as good quality planting materials is a

very promising tool for low cost potato production in enabling the rapid and timely increased of new cultivars and preventing possible occurrence of tuber borne disease.

If rooted stem cutting are used instead of seed tubers in our commercial potato production, it is expected that seed cost will be reduced at a conservation estimate of 16,000.00 0r 79% plus an additional income of same or lesser amount based on a 0.04 cost per stem cutting (HARRDEC, 1988).

Kiswa *et al.* (1990) stated that the use of rooted stem cutting as planting materials, as an alternative to seed tubers can reduce the cost of seed by as much as 40% and this method eliminates disease caused by pathogens. It also breaks contact with non-systemic seed and soil-borne diseases, although labor is more intensive.

Dodds (1994) found that micro tuber has long dormancy in almost all genotypes, but it is significantly easier to handle and distribute compared to in-vitro plantlets. He further found that this has many advantages over conventional seed tubers for transport and maintenance, therefore lower problems in terms of quarantine regulation, less liable to damage and most importantly, they ensure greater case in maintaining sanitary quality.

Zamora *et al.* (1986) reported that stem cutting yield more planting materials is the shortest possible time than the traditional seed piece method. In most instances, planting material produced from stem is cheaper.

MATERIALS AND METHODS

An area of 150 m^2 was well prepared and divided into three blocks. Each block had ten plots measuring 1mx5m each.

Each plot was basal with chicken manure at the rate of six kilos per plot. Ten days after the different varieties of rooted stem cuttings were planted at the rate of one stem cuttings per hill with a distance of 25x 25 cm between hills and rows. These different varieties were acquired from the Northern Philippines Root Crops Research and Training Center (NPRCRTC). The replanting was done five days after planting. The first hilling-up was done 20 days after transplanting and with side dressed of 14-14-14 at the rate of 50 grams per plot. Second hilling-up was done 40 days after transplanting. All the necessary practices required for conventional potato production was employed.

Data to be gathered

The data gathered were the following:

1. Initial height (cm). Ten sample plants per plot were measured from base to tip of the plant 20 days after transplanting

2. Percentage survival. This was the ratio of the number of plants that survived, and the total number of plants planted.

$$\% \text{ survival} = \frac{\text{number of survival plant}}{\text{Total number of plants planted}} \times 100$$

3. Plant Vigor. This was recorded at 25 and 50 days after transplanting using a rating scale of CIP (Gonzalez *et al*., 2004)

Rating	Description	Reaction
5	Plants are strong with robust stem and leaves, light color to dark green in color.	Highly vigorous
4	Plants are moderately strong with robust stem and leaves were light green in color.	Moderately vigorous
3	Better than less vigorous.	Vigorous
2	Plants are weak few thin stem and leaves, pale.	Less vigorous
1	Plants are weak with few stems and leaves very pale.	Poor vigor

4. Leaf miner incidence. The appearance of leaf miner was observed at 25, 50, and 65 DAP using the following scale of (CIP, 2001):

Scales	Description	Remarks
1	Less infested (1-20%)	Resistant
2	Infested (20-40%)	Moderate resistant
3	Moderate infested (41-60%)	Intermediate
4	Severely infested (61-80%)	Moderate susceptibility
5	Most serious (81-100%)	Susceptible

5. Late blight incidence. Observation was done start during the plant establishment to mid-vegetative stage at 25, 50 and 65 DAP using the CIP rating scale by Henfling (1982).

Blight (%)	CIP Scale	Description Symptom
	1	No late blight observed

Traces-<	2	Late blight present, maximum 10 lesions per plant.
5-<13	3	Plants look healthy but lesion are easily seen at closer distance maximum foliage are affected by lesions destroyed corresponds to 20 leaflets.
15-<35	4	Late blight easily seen on most plants. About 25% of foliage is covered with lesion or destroyed.
35-<65	5	Plot looks green; however, all plants are affected lower leaves are dead. About half foliage are destroyed.
65-<85	6	Plot looks green with brown flecks. About 75% of each plant is affected. Leaves of the lower-half of the plant are destroyed.
85-<95	7	Plot neither predominantly green nor brown. Only top leaves are green. Many stems have large lesions.
95-<100	8	Plot is brown colored. A few top leaves still have green areas. Most stems have lesion are of dead.
100	9	All leaves and stems are dead.

Description: 1= highly resistant; 2-3= resistant; 4-5=moderately resistant; 6-7; moderately susceptible; 8-9=susceptible

6. Final height (cm).Ten sample plants per plot were randomly chosen and measured from base to tip one week before harvesting.

7. Percent hills harvested. Percent hill harvest was computed with the following formula;

$$\% \text{ hills harvested} = \frac{\text{Number of hills harvested}}{\text{Total number of hills planted}} \times 100$$

8. Number and weight of marketable tubers per plot (kg). This were the tubers from marble to large size which free from malformation, diseases and insect damaged and with less than 10% greening of the total surface.

9. Number and weight of non-marketable tubers per plot (kg). These were obtained by counting and weighting all tubers that are malformed, damaged by pest and disease and those with more than 10% greening.

10. Total yield per plot (kg).The sum of the weight of marketable and non-marketable tuber per treatment.

11. Computed yield (ton/ha).This was computed in a hectare basis using the formula;

$$\text{Computed yield (tons/ha)} = \frac{\text{total yield/plot}}{5\text{m}^2 \text{ x } 1000 \text{ m}^2} \times 100$$

12. Return of cash on expense (ROCE). This was computed by dividing the net profit over the total cost of production multiplied by 100.

$$\text{ROCE} = \frac{\text{net profit}}{\text{Total cost of production}} \times 100$$

Analysis of Data

All quantitative data were analyzed using the Analysis of Variance (ANOVA) for Randomized Complete Block Design (RCBD) with three replications. The significance of differences among the treatment means was tested using the Duncan's Multiple Range Test (DMRT) at 5% level of significance.

RESULTS AND DISCUSSION

Meteorological Data

Table 1 shows the meteorological data from November 2012 to February 2013 at Baculongan Sur, Buguias, Benguet. The highest temperature was recorded in the month of November and the highest relative humidity was recorded in the month of December (78.9%) while the lowest was in the month of February (68.69%). The highest rainfall was recorded from the month of November (1.43 L) and the lowest was in the month of February (0.4 L).

For potato production, the best temperature requirement range from 17^{o}C to 22^{o}C and relative humidity should be at an average of a 86% (HARRDEC, 1996). Therefore, the temperature and relative humidity during the conduct of the study was favorable for potato production at Buguias, Benguet.

Table 1. Meteorological data from November 2012 to February 2013 at Buguias, Benguet

MONTH	AIR TEMPERATURE ^{O}C		RELATIVE HUMIDITY (%)	RAINFALL AMOUNT (L)
	max	min		
November	23.03	17.39	75.89	1.43
December	23.35	10.89	78.9	0.57
January	22.23	8.71	77.1	1.23
February	23.19	9.09	68.69	0.4

Percent Survival

The results showed significant differences on percent survival of the different potato varieties (Table 2). At 30 DAP, Igorota, Ganza and PO4 obtained one hundred percent plant survival which was comparable to I 1035 and Gloria with 97.50% and 96.67%

survival, respectively. The check varieties Granola Mexican and Granola Fina had the lowest plant survival of 72.50% and 78.33%, respectively. At 60 DAP, the same varieties maintained the highest survival which were comparable with varieties Gloria and I1035. The low survival percentage of Granola Fina and Granola Mexican was attributed to cutworm and late blight infection.

Table 2. Percent survival of ten potato varieties grown from rooted stem cuttings in Buguias, Benguet

VARIETY	PLANT SURVIVAL (%)	
	30 DAP	60 DAP
Granola Fina (ck)	78.33[d]	61.67[d]
Granola Mexican (ck)	72.50[d]	56.67[d]
Raniag	95.00[c]	78.33[bc]
Igorota	100.00[a]	98.33[a]
Ganza	100.00[a]	95.83[a]
Po4	100.00[a]	100.00[a]
Agria	89.17[d]	70.83[cd]
Jelly	88.33[d]	71.67[cd]
Gloria	96.67[ab]	89.17[ab]
I 1035	97.50[ab]	88.33[ab]
CV%	4.89	10.28

Treatment means with different letter are significantly different at 5% probability levels (DMRT).

Plant Vigor

Table 3 shows the plant vigor of the different potato varieties at 25, 50, and 65 DAP. At 25 DAP, Igorota, Ganza, P04 and I 1035 were highly vigorous. At 50 and 65 DAP, some of the varieties consistently decreased in plant vigor except for varieties Igorota, Ganza and PO4. The decrease in plant vigor was due to late blight infection.

Table 3. Plant vigor of ten potato varieties at 25, 50 and 65 DAP grown from rooted stem cuttings in Buguias, Benguet

VARIETY	PLANT VIGOR		
	25 DAP	50 DAP	65 DAP
Granola Fina (ck)	Moderately vigorous	Moderately vigorous	Vigorous
Granola Mexican(ck)	Moderately vigorous	Moderately vigorous	Vigorous
Raniag	Moderately vigorous	Moderately vigorous	Vigorous
Igorota	Highly vigorous	Highly vigorous	Highly vigorous
Ganza	Highly vigorous	Highly vigorous	Highly vigorous
Po4	Highly vigorous	Highly vigorous	Highly vigorous
Agria	Moderately vigorous	Vigorous	Vigorous
Jelly	Moderately vigorous	Vigorous	Vigorous
Gloria	Moderately vigorous	Moderately vigorous	Moderately vigorous
I 1035	Highly vigorous	Moderately vigorous	Moderately vigorous

Leaf Miner Incidence

Table 5 shows the leaf miner incidence at 25, 50 and 65 DAP. At 25 DAP, all the varieties were found resistant. At 50 DAP, varieties Igorota, Po4, Ganza and Gloria maintained their resistance to leaf miner. The rest of the varieties became moderately resistant. At 65 DAP, Igorota, Po4, and Ganza remained resistant to leaf miner incidence and the other varieties remained moderately resistant. The resistance noted on the different potato varieties was attributed to their genetic response.

Table 4. Response to leaf miner incidence of ten potato varieties at 25, 50 and 65 DAP grown from rooted stem cuttings in Buguias, Benguet

VARIETIES	RESPONSE TO LEAF MINER INCIDENCE	
	50 DAP	65 DAP
Granola Fina (ck)	Moderately resistant	Moderately resistant
Granola Mexican(ck)	Moderately resistant	Moderately resistant
Raniag	Moderately resistant	Moderately resistant
Igorota	Resistant	Resistant
Ganza	Resistant	Resistant
Po4	Resistant	Resistant
Agria	Moderately resistant	Moderately resistant
Jelly	Moderately resistant	Moderately resistant
Gloria	Resistant	Moderately resistant
I 1035	Moderately resistant	Moderately resistant

Late Blight Incidence

At 25 DAP, all the varieties were highly resistant. However at 50 and 65 DAP, only Igorota, Ganza, Po4 and Gloria remained resistant while the other varieties were moderately resistant to late blight. The continuous rainfall aggravated the late blight damage of the non-resistant varieties one month after planting.

Table 5. Response to late blight incidence of ten potato varieties at 25, 50 and 65 DAP grown from rooted stem cuttings in Buguias, Benguet

VARIETY	RESPONSE TO LATE BLIGHT INCIDENCE	
	50 DAP	65 DAP
Granola Fina(ck)	Resistant	Resistant
Granola Mexican(ck)	Resistant	Resistant
Raniag	Resistant	Resistant
Igorota	Highly resistant	Highly resistant
Ganza	Highly resistant	Highly resistant
Po4	Highly resistant	Highly resistant
Agria	Resistant	Resistant
Jelly	Resistant	Resistant
Gloria	Highly resistant	Highly resistant
I 1035	Resistant	Resistant

Plant Height and Percent Hills Harvested

The ten potato varieties showed no significant differences in height at 20 DAP. At 75 DAP, Igorota and Po4 were significantly the tallest but comparable with Gloria. The shortest variety was Granola Fina. The differences on plant height of the different varieties were due to their varietal nature.

On the percentage of hills harvested, varieties Po4 and Igorota obtained the highest percentage (98.33% and 95.83%) but comparable to Ganza with 93.33% hills harvested. The high percentage hills harvested from Po4, Igorota and Ganza were attributed to their high survival, good plant vigor, resistance to leaf miner and late blight.

Table 6. Plant height and percent hills harvested of ten potato varieties grown from rooted stem cuttings in Buguias, Benguet

VARIETIES	PLANT HEIGHT (cm)		PERCENT HILLS HARVESTED (%)
	20 DAP	75DAP	
Granola Fina (ck)	11.13	28.73^{d}	60.83^{d}
Granola Mexican (ck)	11.04	30.48^{d}	60.00^{d}
Raniag	11.76	38.95^{c}	76.67^{bcd}
Igorota	12.30	55.22^{a}	95.83^{a}
Ganza	13.81	43.10^{bc}	93.33^{ab}
Po4	11.71	53.52^{a}	98.33^{a}
Agria	10.40	30.26^{d}	69.17^{cd}
Jelly	11.92	27.30^{d}	0.83^{cd}
Gloria	12.68	49.92^{ab}	85.00^{abc}
I 1035	11.87	29.50^{d}	86.68^{abc}
CV (%)	4.89	10.28	9.71

Treatment means with different letter are significantly different at 5% probability levels (DMRT).

Number and Weight of Marketable and Non-marketable tubers

Table 7 shows the number and weight of marketable and non-marketable tubers. In terms of the number of marketable tubers, Igorota had the most number of tubers followed by Po4 with (225 and 183, respectively). Granola Fina obtained the lowest number with 88 tubers. Varieties Igorota, Jelly and Gloria had the highest number of non-marketable tubers with 17 were comparable with Ganza. Agria produced the lowest number of non-marketable tubers. On the weight of marketable tubers, Igorota and Po4 were the heaviest (12.58 kg/5m^2 and 11.58 kg/5m^2) which were comparable with Ganza (10.33 kg/5m^2). Granola Mexican obtained the lightest tubers of 4.33 kg/5m^2. For the weight of non-

marketable tubers, Ganza was the heaviest and which was comparable with Igorota (0.67 kg/5m^2).

Table 7. Number and weight of marketable and non-marketable tubers of the ten potato varieties grown from rooted stem cuttings in Buguias, Benguet.

VARIETY	MARKETABLE TUBER		NON-MARKETABLE TUBER	
	NUMBER	WEIGHT (kg)	NUMBER	WEIGHT (kg)
Granola Fina (ck)	88^{d}	4.83^{c}	8^{cd}	0.25^{dc}
Granola Mexican (ck)	103^{d}	4.33^{c}	12^{abc}	0.29^{dc}
Raniag	111^{d}	4.75^{c}	8^{cd}	0.42^{bcde}
Igorota	225^{a}	12.58^{a}	17^{a}	0.67^{ab}
Gansa	146^{b}	10.33^{ab}	14^{ab}	0.75^{a}
PO 4	183^{c}	11.58^{a}	10^{bcd}	0.50^{abcd}
Agria	93^{d}	4.75^{c}	5^{d}	0.21^{c}
Jelly	105^{d}	4.58^{c}	17^{a}	0.33^{cde}
Gloria	114^{d}	7.42^{bc}	17^{a}	0.58^{abc}
I 1035	108^{d}	4.50^{c}	8^{cd}	0.25^{de}
CV (%)	20.82	22.75	24.69	29.81

Treatment means with different letter are significantly different at 5% probability levels (DMRT)

Total Yield per Plot and Computed Yield (t/ha).

Table 8 and Figure 3 show significant differences among the ten potato varieties on total (kg/5m2) and computed yield (t/ha). Igorota obtained the highest total yield of 13.25 kg per 5m^2 and was comparable with Po4 and Ganza having total yield (12.08 kg/5m^2 and 10.08 kg/5m^2) respectively. On computed yield (t/ha), Igorota had the highest (26.50 tons/ha) which was comparable with Po4 and Ganza (24.17 tons/ha and 21.17 tons/ha).The lowest computed yield was recorded from Granola Mexican (9.25 tons/ha). The significant differences on both total and computed my be attributed to genetic make-up of the different varieties

Table 8. Total yield per plot and computed yield per hectare of the ten potato varieties grown from rooted stem cuttings in Buguias, Benguet

VARIETY	TOTAL YIELD ($kg/5m^2$)	COMPUTED YIELD (tons/ha)
Granola Fina (ck)	5.08^{b}	10.17^{bc}
Granola Mexican (ck)	4.63^{b}	9.25^{c}
Raniag	5.17^{b}	10.33^{bc}
Igorota	13.25^{a}	26.50^{a}
Gansa	10.08^{ab}	21.17^{ab}
PO 4	12.08^{ab}	24.17^{ab}
Agria	4.96^{b}	9.92^{bc}
Jelly	4.92^{b}	9.83^{bc}
Gloria	8.00^{ab}	16.00^{b}
I 1035	4.75^{b}	9.50^{bc}
CV (%)	21.91	22.03

Treatment means with different letter are significantly different at 5% probability levels (DMRT)

Return on Cash Expense (ROCE)

Table Potato table 9 shows the computed ROCE per variety. Variety Igorota registered the highest ROCE with 101.28 % followed by Po4 and Ganza. The lowest positive ROCE was obtained from Gloria with 18.37% while the rest of the varieties had negative ROCE. The result indicates that the varieties with the highest yield per hectare gained the highest ROCE.

Table 9. Cost analysis of potato production grown from rooted stem cuttings in Buguias, Benguet for table production

VARIETY	COST OF PRODUCTION (Php/5m^2)	MARKETABLE TUBERS (kg/5m^2)	GROSS SALE (Php)	NET INCOME	ROCE (%)
Granola Fina (ck)	125	4.83	96.6	-28.4	-22.7
Granola Mexican (ck)	125	4.33	86.6	-38.4	-30.7
Raniag	125	4.75	95	-30	-24.0
Igorota	125	12.58	251.6	126.6	101.28
Ganza	125	10.33	206.6	81.6	65.28
Po4	125	11.58	231.6	106.6	85.28
Agria	125	4.75	95	-30	-24.0
Jelly	125	4.58	91.6	-33.4	-26.72
Gloria	125	7.42	148.4	23.4	18.37
I 1035	125	4.5	90	-35	-28.0

The different sizes of the marketable tubers all sold in lump at Php20.00 per kilo.
Cost of production includes the fertilizers, planting materials, labor, insecticide and fungicide.

Seed tuber. Table 10 shows the computed ROCE per variety for seed tuber production. All the varieties had positive ROCE. Igorota registered the highest ROCE with 800% followed by Po4 with 484%. The lowest ROCE was obtained from Granola with 252%. The results indicate that the varieties with greater number of tubers gained the highest net profit and ROCE.

Table 10. Cost analysis of potato seed tuber production grown from rooted stem cuttings in Buguias, Benguet

VAREITY	COST OF PRODUCTION (Php/5m^2)	NUMBER OF MARKETABLE TUBERS (per/5m^2)	GROSS SALE	NET INCOME	ROCE (%)
Granola Fina(ck)	125	88	440	315	252
Granola Mexican(ck)	125	103	515	390	312
Raniag	125	111	555	430	344
Igorota	125	225	1125	1000	800
Ganza	125	146	730	605	484
Po4	125	183	915	790	632
Agria	125	93	465	340	272
Jelly	125	105	525	400	320
Gloria	125	114	570	445	356
I 1035	125	108	540	415	332

The potato seed tubers were sold at Php 5.00 per piece regardless to size.
Cost of production includes the fertilizer, planting materials, labor, insecticide and fungicide.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

The study was conducted to determine the growth and yield of the ten potato varieties. To determine the growth, yield, and resistant varieties to pest and diseases: and to determine the profitability of growing potato rooted stem cuttings in Buguias, Benguet. The study was conducted from November 2012 to February 2013.

Among the potato varieties, Igorota produced the most number of tubers with the highest weight of total and computed yield (t/ha). The varieties Igorota, Po4, Ganza and Gloria obtained the highest ROCE while Granola Fina and Granola Mexican (check variety) had negative ROCE. In terms of seed tubers production, all the varieties had positive ROCE.

In terms of the reaction to leaf miner and late bight incidence, Igorota, Ganza and Po4 were highly resistant and the others were moderately resistant.

Conclusion

Based on the results of the study, Igorota, Po4, Ganza and Gloria had the highest total yield and computed yield per hectare. All the potato varieties had high percentage of survival, resistance to leaf miner and late blight. Igorota, Po4, Ganza and Gloria had positive ROCE while the other varieties had negative ROCE in terms of table potato production. In terms of seed tuber production, Igorota, Po4 and Ganza had the highest positive ROCE.

Recommendation

Based on the results of the study, Igorota, Po4, Ganza and Gloria are recommended for profitable table potato production. For seed tuber production, Igorota, Po4 and Ganza are the recommended varieties while the other varieties could be an alternative if there is shortage of potato seed tubers.

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