Economic comparison of potato with vegetable pea in central alluvial tract of U.P.
Amar Singh1, R.A. Singh1* and Adesh Kumar2

1Krishi Vigyan Kendra, Anogi, Jalalabad, Kannauj-C.S. Azad University of Agriculture and Technology, Kanpur-208002, India
2Department of Vegetable Science, N.D. University of Agriculture and Technology, Kumarganj, Faizabad-224 229, India

*e-mail: rasinghcsau@gmail.com

(Rceived: May, 01, 2014; Revised received: September 18, 2014; Accepted: September 19, 2014)

Abstract: The on farm trial was laid out during autumn season of 2010-11 at farmers fields of Kannauj district. The pilot area situated in the catchments area of river Kali. For assessment of return obtain from potato and vegetable pea, the cropping system was refined with the inclusion of vegetable pea in the traditional cropping system. In water receding area, the tubers yield of potato was reaped by 276.00 q/ha. The green pods yield of vegetable pea was recorded as 116.00 q/ha under similar condition. The yield contributing traits of both crops were concordance to their yields. The higher gross return of Rs. 116000/ha, net return of Rs. 91191/ha and BCR of 1:4.67 were recorded with reaping of marketable size pods of vegetable pea than the gross return of Rs. 110400/ha, net return of Rs. 66397/ha and BCR of 1:2.50 computed under test crop of potato. Therefore, potato can be replaced by cultivation of vegetable pea in water receding area for obtaining equal or more net return.

Key words: Assessment and refinement, Catchments area, Grey and dark grey area, Relay cropping, Water receding area

Introduction
Potato is a major commercial and cash crop of alluvial tract of Uttar Pradesh. It is also grown in wide range of climatic condition and soil type with wide flexibility in sowing and harvesting time. It can be harvested while tubers are still immature and also if the tubers are left in harvested for some time, they continue to increase in size and there by improve tuber yield. This characteristics of potato crop make this enterprise most suitable for inclusion in multiple and relay cropping systems. Most of farmers of potato growing rich area, harvest the first crop of immature tubers and sale it at higher rate in the market and gain good return. In the same field grow second crop of potato and harvest after maturity. This intensive cultivation of potato require more water for irrigations and reduce the ground water productivity, resulted in, this area declared as grey and dark grey zone. Though the potato crop pay good return to the farm families but require higher investment on its cultivation. The vegetable pea cultivation for green pods is the better alternative to potato, which provide the similar or more profit to potato crop and scale up the ground water productivity (Singh et al., 2013b).

Vegetable pea for green pods is a very popular winter season crop through out the plain of U.P., especially on alluvial soil. The green pods in certain varieties is edible and usually cooked in various vegetable preparations (Chatto et al., 2010). It can be grown on all types of soils but the early crop is expected in light soils and higher yields in loose, friable and heavy soils. It grows best at a normal pH.

The irrigational requirement of vegetable pea is lesser than potato. Thus, the less exploitation of water for irrigations by vegetable pea, save the ground water and maintain the good water level. Therefore, the cultivation of vegetable pea in grey and dark grey zone is most suitable, where it give equal or more return in potato crop. Therefore, for assessment of economic gain from potato and its replacement with production of green pods of vegetable pea in the grey and dark grey zone, the cropping system was refined (Singh et al., 2013a). Through this paper an attempt was made to compare the economic gain of potato with inclusion of vegetable pea pods production in the study. The study was conducted on farmers fields for scaling up of water productivity in the grey and dark grey area.

Materials and Methods
The on farm trial was conducted during autumn season of 2010-11 at farmers field of Digsara, Pachpukhra, Hardevpurwa and Haundapur villages of block Jalalabad in district Kannauj, situated on alluvial tract of Central Plain Zone of U.P. The main objective of the study was to obtain the same or more return from the cultivation of green pods of vegetable pea to the potato in grey and dark grey zone of district Kannauj. The secondary objective was to replace the potato cultivation with production of green pods of vegetable pea in ground water subjected area. The experimental site was sandy loam to loam, having pH 8.2, organic carbon 0.23%, total nitrogen 0.02%, available P 9.00 kg/ha and available K 273 kg/ha, therefore, the fertility status was low. The main problem of this area is receding of ground water due to more exploitation through irrigations in potato. This problem was sought out in Jalalabad block of Kannauj district through reconnaissance survey. The cropping system was refined with inclusion of cultivation of vegetable pea for green pods in place of potato. Farmers advocated for growing of potato and vegetable pea with recommended agronomical practices. The cultivar Kufri Bahar (3797) planted between 5-20 November, 2010 was harvested between 25 February 2011 to 14 March
2011. Similarly, vegetable pea (cv. V.R. 6) was planted between 6-8 November, 2010 and harvested in 10-25 February, 2011. The plant protection measures were followed for the control of late and early blight of potato. The five irrigations were given to potato, while vegetable pea raised with two irrigations. The OFT was conducted on five farmers fields.

Results and Discussion

The potato raised in the water receding area gave 6.5 tubers/plant. The weight of tubers was recorded as 329.00 g/plant. The mature potato tubers reaped by 276.00 q/ha. These results are in agreement with those reported by Singh et al. (2013a) and Singh et al. (2013b). In similar condition, the green pods of vegetable pea was counted by 9.60/plant. The weight of green pods of vegetable pea was recorded as 40.50 g/plant. Vegetable pea yielded green pods by 116.00 q/ha, which was plucked at marketable size. These observations support to the findings of Singh et al. (2011).

The cost of cultivation of potato was computed by Rs. 44003/ha, which was higher than the cost invested on vegetable pea cultivation by a margin of Rs. 19194/ha or 43.62%. The cost of cultivation in potato was higher due to higher seed rate and increase in number of irrigations. These results confirm the findings of Singh et al. (2013a) and Singh et al. (2013b). The higher gross return of Rs. 116000/ha, net return of Rs. 91191/ha and BCR of 1:4.67 were found with reaping of green pods of vegetable pea over the gross return of Rs. 110400/ha, net return of Rs. 66397/ha and BCR of 1:2.50 computed under cultivation of potato. The less frequency of irrigation in vegetable pea boosted the pods yield of vegetable pea appreciably, resulted in, the profitability increased. Chatto et al. (2010) also reported the higher profitability with the cultivation of vegetable pea for green pods.

According to farmers the cultivation of vegetable pea in grey and dark grey zone is acceptable and green pod production of vegetable pea provided good and more return in short time and vacant the field for sowing of summer season crops. Tha farmers also appreciated to the efforts of scientists and they contacted to the scientist vide telecounselling mode regarding the green pods cultivation of vegetable peas. According to farmers the vegetable pea cultivation for green pods transferred to other places from donor area. They are very much influenced about the OFT, conducted on their fields.

Table-1: Yield contributing traits, yield and economics of potato and vegetable pea in water receding area

<table>
<thead>
<tr>
<th>Crop</th>
<th>Variety</th>
<th>Potato tubers/plant &amp; green pods/plant</th>
<th>Weight of tubers/plant &amp; green pods weight/plant</th>
<th>Yield (q/ha)</th>
<th>Cost of cultivation (Rs/ha)</th>
<th>Gross return (Rs/ha)</th>
<th>Net return (Rs/ha)</th>
<th>BCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato</td>
<td>Kufri Bahar (3797)</td>
<td>6.50</td>
<td>329.00</td>
<td>276.00</td>
<td>44003</td>
<td>110400</td>
<td>66397</td>
<td>1.25</td>
</tr>
<tr>
<td>Vegetable pea (for green pods)</td>
<td>V.R. 6</td>
<td>9.60</td>
<td>40.50</td>
<td>116.00</td>
<td>24809</td>
<td>116000</td>
<td>91191</td>
<td>1.467</td>
</tr>
</tbody>
</table>

Sale price- Potato @ Rs. 400.00 per quintal; Pods of vegetable pea @ 1000.00 per quintal

References


