Short Communication

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Vegetable production potential and income generation in Barmer district

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Barmer district offers very good opportunities for cultivation of arid vegetables like mateera (*Citrullus lanatus*), snapmelon (*Cucumis melo*), kachari, brinjal (*Solanum melongena*), bottle gourds (*Lagenaria siceraria*), round melon (*Praecitrullus fistulosus*), Indian aloe (*Aloe barbadensis*), and Khejri sangari (green pods of *Prosopis cineraria*). The data about the present situation, production potential, and problems are not available. To determine the production and yield potential, income generation, and profits, it is essential to know the vegetables grown during the kharif and rabi seasons to make suitable plans and strategies to encourage their production.

Out of the 15 tehsils in Barmer district, Gudamalani, Siwana, Pachpadra, Dhorimanna, and Barmer Tehsil were purposively selected for the study. Five villages were chosen from each tehsil, resulting in a total of 15 villages. From these villages, four farmers were randomly selected, making a total sample size of 60 farmers. The selected farmers were personally contacted, interviewed, and their responses were recorded using a semi-structured interview schedule. Statistical analysis, including measures such as percentage, area in hectares, price, and income, was used to draw conclusions and inferences from the data.

The results showed that farmers cultivate a variety of vegetables during the kharif and rabi seasons. I'm kharif season, 63.33% of the farmers grew combinations of mateera, snapmelon, kachari, round melon, tinda, pearl millet, sesame, moth bean, and cluster bean as rainfed crops. The vegetables grown in different cropping systems, under different seasons and combinations, ranged from mateera, snapmelon, kachari, brinjal, bottle gourd, ridge gourds, cluster bean, round melon, okra, tomato, chili, cauliflowers, cabbage, spinach, carrot, radish, pea, green onion, sangari (pods), and khejri. The major vegetable cropping systems practiced by the farmers included sole cropping, intercropping, mixed cropping systems, and perennial plantation.

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The findings are supported by Mishra *et al*. (2003), further emphasizing the suitability of these vegetable cropping systems in the region.

During kharif season, 36.66% of farmers district grew mateera, snapmelon, and kachari as sole crops on areas ranging from 0.2 to 1.5 hectares. In irrigated conditions, 56.66% of vegetable growers cultivated brinjal, bottle gourd, ridge gourd, round melon, tomato, okra, chilli, etc. as sole crops on areas ranging from 0.2 to 2.0 hectares.

In rainfed conditions during kharif season, farmers adopted a mixed cropping system. They grew mateera, snapmelon, kachari, round melons, etc., in combination with pearl millet, groundnut, sesame, moth bean, cluster bean, and other crops (Bairwa *et al*., 2020). This type of cropping system was practised by 63.33% of vegetable growers on areas ranging from 0.5 to 4.0 hectares. The mixed cropping system was found to be the most prominent method of vegetable cultivation in the arid environment of Barmer district, with the majority of farmers adopting this system and covering the largest area (0.5-4.0 hectares).

On 61.66% of vegetable-growing farmer fields, there were 15-25 perennial khejri plants per hectare. These khejri plants served as a major source of vegetables and fodder for farm animals. The plants were either grown naturally or cultivated by farmers and cared for and protected (Meena *et al*., 2007).

During rabi season, farmers grew watermelon, musk melon, cucumber, bitter gourd, kheera, brinjal, bottle gourd, ridge gourd, and other crops as sole crops. Approximately 56.66% of farmers cultivated these crops on areas ranging from 0.2 to 2.0 hectares. Sharma and Khurana (2000) had stated that majority of the farmer grew pulses (moong, mash and cowpea), vegetables ,and oilseeds as intercrops in mango orchards in Gurdaspur district of Punjab. Similarly, during the *zaid* season under irrigated conditions, 31.66% of farmers grew watermelon, musk melon, cucumber, bitter gourd, brinjal, bottle gourd, ridge gourd, and other crops as sole crops on areas ranging from 0.2 to 3.0 hectares.

During kharif season, farmers grow these crops on their fields and earn net income per hectare as follows: snapmelon (₹46,158), kachari (₹36,162), bottlegourd (₹49,566), ridge gourd (₹49,320), round melon (₹52,254), tomato (₹73,026), brinjal (₹51,117), chilli (₹78,504), and cluster bean (₹33,380).

Among other vegetable crops, cabbage, carrot, radish, and cauliflower have the highest yield potential at 218, 170, 200, and 198 quintals per hectare, respectively. However, net income is highest from pea and cauliflower, followed by cabbage, carrot, and spinach. Farmers earn ₹47,380, ₹43,288, ₹40,209, ₹38,336, and ₹33,302 per hectare from pea and cauliflower, cabbage, carrot, and spinach crops, respectively. However, area under pea and cabbage cultivation is limited due to unsuitable groundwater and other climatic conditions, causing farmers to avoid growing them.

The yield potential of longmelon, muskmelon, watermelon, and cucumber is approximately 90-100, 70-80, 120-135, and 60-80 quintals per hectare, respectively. However, the net income per hectare is highest for cucumber, followed by watermelon, longmelon, and muskmelon, with earnings of ₹15,000, ₹50,192, ₹46,675, and ₹35,163, respectively. Nevertheless, area under cucumber cultivation is limited due to unsuitable groundwater and other climatic conditions, causing farmers to avoid growing it.

It is important to note that these statistics reflect the specific conditions and results observed in the Barmer district and may vary in other regions or contexts.

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New vegetable varieties

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Ridge gourd (*Luffa acutangula*) Thar Karni

Thar Karni takes 51-55 days to reach the first picking stage from sowing. The fruits, measuring 20-25 cm in length and weighing 90-110 g, are cylindrical with 10 longitudinal shallow ridges. The plants bear short internodes and are profusely branched. The yield potential is 180-240 q/ha. It is tolerant to mosaic disease under field conditions and is suitable for cultivation in the spring-summer and Kharif seasons. Thar Karni exhibits fruit setting at high temperatures, making it suitable for cultivation in hot arid conditions during the summer season.

Longmelon (*Cucumis melo*) Thar Sheetal

The fruits of Thar Sheetal are 25-30 cm long, tender, and delicious. They are harvested 45-50 days after sowing. The fruits are free from bitterness. The inherent tolerance to high temperatures allows for its cultivation even during the summer season. Thar Sheetal can yield 150-200 q/ha, which amounts to ₹2.0-2.4 lakh/ha.

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