

Onion nursery production: A rewarding agri-enterprise for young farmers

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Onion has year-round demand making it highly profitable crop. It is an irreplaceable commodity in every Indian kitchen and used in many dishes either raw or cooked. Thus, commercial onion nursery is an excellent business scope. This article entails the process of onion nursery production with economics and risk factors involved in its production. By using quality seeds, drip/micro-sprinkler irrigation and scientific management, strong and healthy seedlings can be produced. It offers quick returns and is an ideal opportunity for rural youth and marginal farmers.

Keywords: Income opportunity, Quality seeds, Rural, Scientific management

ONIONS (*Allium cepa* L.) are one of the extensively cultivated and consumed vegetables globally, playing a vital role in various cuisines. Onion occupies about 160 lakh hectare area in India. India, the world's leading onion producer, contributes more than 15% to global output. Both the green tops and bulbs, whether immature or fully grown, are consumed raw in salads or incorporated into vegetable dishes. Onions enhance the flavour soups, sauces, pickles (using smaller bulbs), and serve as a key seasoning ingredient. As a staple condiment, onions are a year-round essential in Indian households, often enjoyed both as raw and cooked. Additionally, onions offer significant medicinal and nutritional benefits, with smaller varieties typically being more nutrient-rich than larger ones. Regular consumption of onions can help to reduce the risk of heart disease and other health issues. To meet the substantial domestic and export demand, a consistent supply of onions is maintained through fresh harvests or stored stocks. Thus, the demand for onions is consistent throughout the year, making onion cultivation a lucrative

business opportunity for farmers and entrepreneurs.

Scope of onion nursery production enterprise

Onion cultivation is heavily dependent on quality seedlings, which can be a significant challenge for farmers. Majority of farmers lack specialised knowledge and skills required for growing healthy onion seedlings. Furthermore, onion nursery production demands intensive care to prevent infestations of pests. Thus, most onion producers prefer to purchase onion nurseries rather than cultivating their own. Consequently, many beginner and small-scale household producers find it more practical to buy established nurseries, thereby avoiding the significant time and financial investment required for onion nursery production. This is where scope for onion nursery production enterprise comes into play.

Onion nursery production involves growing healthy onion seedlings in a suitable environment, typically in a nursery, before transplanting them into the field. This process ensures healthy

and robust seedlings, which are better equipped to withstand pests and environmental stresses. Additionally, onion nursery production has provided employment opportunities for rural communities, contributing to local economic development.

Details of onion nursery production

The foremost step in onion nursery production is field preparation. The field is tilled 5–6 times to break up soil clumps and create a finely pulverised texture that retains moisture effectively. Prior to preparing the seedbeds, all remnants of previous crops, weeds, and stones are cleared. Approximately 2.5 tonnes of well-rotted farmyard manure (FYM) is incorporated into the soil during the final ploughing on a hectare plot, ensuring thorough mixing. Nursery growers add nitrogen, phosphorus, potash, and other fertilisers to the soil before forming beds. Raised beds are preferred for nursery production, as flat beds allow water to flow from one end to the other, which can lead to seed washout and poor germination, resulting in seedling loss. Flat beds also struggle



Diagrammatic scheme and different views of the onion nursery at the farmer's field

with draining surplus water. Raised seedbeds, elevated 10–15 cm, with a width of 100–120 cm and a length suited to the field's layout, are then created for nursery cultivation. Most common bed size followed is 91.44 × 243.84 cm (3 × 8 feet) with about 2,125 raised beds are accommodated in an area of one hectare with the seed rate of 110–125 kg. A one feet wide channel is maintained to ensure proper irrigation and effective drainage of excess water.

Seeds are treated with thiram at 2 g/kg to protect against damping-off disease. Alternatively, *Trichoderma viride* is applied at 1,250 g/ha as a chemical-free method to control damping-off and promote healthy seedling growth. Seeds are sown in rows spaced 5–7.6 cm (2–3 inches) apart to simplify weeding and seedling removal for transplanting. On an average, one seedbed of 243.84 cm (8 feet) length have 60–64 lines and 50–60 g of seed is used for one bed. In one line, 100–150 seeds

are sown which vary according to seed size and labour expertise. After sowing, the seed is covered with fine powdered farmyard manure or compost or ash (for ash, two trollies per acre are used). Some entrepreneurs use roller after use of ash to cover the seeds properly. After that, light irrigation is applied and seed germination can be observed in 3–4 days.

Drip or micro-sprinkler irrigation systems can significantly conserve water during nursery cultivation. To manage soil-borne diseases, a foliar spray of benomyl at 0.2% concentration is applied. In cases of severe thrips infestation, foliar treatments of fipronil or profenofos at 0.1% are used. Seedlings are typically ready for sale 45–50 days after sowing (DAS). To manage weeds, the pre-emergence herbicide pendimethalin is applied at a concentration of 0.2% in the nursery.



Sprinkler irrigation in onion nursery at KVK, Mansa

For sale purposes, sowing of onion nursery starts from 15th of October and continues up to end of November. The nursery seedlings can be sold @ ₹600–800/bed, thus total gross income of rupees 12.75 lakh can be generated from one hectare area provided all the seedlings are sold.

Costs involved in onion nursery production

Nursery production involves fine tillage of the field. The main operations involve tillage using disc harrow followed by cultivator and planking. The total machine hours involved in nursery production are 4 h/ha. For all field operations, total costs involved is ₹15,000. The average cost of seed comes out to be around ₹2.5 lakh considering seed cost @ ₹2,000/kg. Similarly, average expenditure on FYM, fertilisers, pesticides and weedicides can be accounted for ₹6,250, ₹5,250 and ₹1,200, respectively. Labour is involved during field preparation, sowing, weed eradication and uprooting, leading to labour cost of approximately ₹5,600/ha.

Economics of onion nursery production (assuming complete sale of nursery)

As compared to conventional farming, returns from vegetable nursery production starts from just 30–45 days of nursery sowing. Under Punjab conditions, *rabi* onion nursery which is sown from 15th October becomes ready for sale at the end of November. The sale of nursery continuous up to mid-February, however, peak season is 1st January to 15th January. The average cost incurred from producing onion nursery in one hectare is between ₹3.94–4.47 lakh. To achieve success in onion nursery production, access to quality seeds, adequate infrastructure (location of nursery, soil, irrigation setup and other storage facility), and technical expertise is essential.

Risk factors

Although onion nursery production is highly profitable, it comes with several practical risks that farmers must carefully consider.

Table 1. Details of the economics of onion nursery production

Item	Quantity	Value (₹)
Seed and seed treatment		
Seed (kg)	110–125	2,20,000–2,50,000 [#]
Ash (for covering seed) (q)	50	10,000
Sub Total	-	2,60,000
Manures and fertilisers		
Farm Yard Manure (q)	25	6,250
Urea (kg)	112.5	605
Single Super Phosphate (SSP) (kg)	125	905
Diammonium Phosphate (DAP) (kg)	125	3,250
Murate of Potash (MOP) (kg)	75	1,308
Calcium (kg)	50	4,000
Sub Total	-	16,318
Plant protection		
Pesticide (Actara) (g)	225	556
Weedicide (Goal) (ml)	250	527
Weedicide (Agil) (ml)	1,750	2,000
Fungicide (Ridomil Gold) (g)	150	957
Sub Total	-	4,040
Irrigations (No.)	10–15	-
Human labour (h)*	2,906.5	1,08,996
Tractor hours	8.33	4,937

[#] Highest value considered for addition; Not included men hours for tractor operation; If bed planter is opted for sowing, it used 95 man hours and 10 L diesel for hectare.

Table 2. Enterprise budget of onion crop (Per hectare)

Particular	AGC (in lakhs)	AGR (in lakhs)	ANR* (in lakhs)	B:C
Onion nursery production	4.475	12.25	7.75	2.73

* ANR, Average net returns when nursely is sold @ ₹600/bed of 24 sq feet area. AGC, Average gross cost; AGR, Average gross returns.

- **High capital investment:** Very costly due to expensive seeds (₹2.20–2.50 lakh/ha).
- **Labour-intensive:** Requires heavy manual work in sowing, weeding, irrigation, and uprooting seedlings, etc.
- **Technical expertise:** Needs specialised knowledge; any mistake in bed preparation, irrigation, or timing can result in poor germination and seedling quality.
- **Infrastructure dependency:** Success depends on good location, soil, raised bed preparation, and reliable irrigation facilities. Lack of these increases failure risk.
- **Time-sensitive and season:** Limited selling window (mainly Nov to mid-Feb); delay in production or market timing can cause heavy losses.
- **Overall high cost and risk:** High investment at the initial stage

makes it risky for beginners without proper planning.

These challenges can make onion nursery production both costly and time-consuming. Despite these challenges, onion nursery production presents several opportunities for entrepreneurs. By establishing an onion nursery production enterprise, entrepreneurs can capitalise on this demand and generate significant revenue.

SUMMARY

With rising unemployment in rural regions, agricultural entrepreneurship is critical to reduce this number. Agri-entrepreneurship serves as a key solution to address these challenges by reducing the strain on traditional farming, creating job opportunities for rural youth, curbing migration to urban areas, increasing national revenue, fostering rural industrial growth, and alleviating pressure on urban centers. In this context, vegetable nursery production especially onion nursery production emerges as a successful agri-enterprise for rural youth and marginal farmers. However, it needs significant investment (especially on seeds), labour, good irrigation facilities, and technical know-how. Success depends on timely sowing, bed preparation, and selling at the right time. For rural youth and progressive farmers looking for quicker returns than traditional crops, onion nursery raising offers excellent income, local employment, and a chance to reduce migration to cities. By learning the right techniques, a small piece of land can be turned into a profitable business.

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