Beyond the Open Field: Growing Income Through Protected Cultivation

Chetan Dedhia
Managing Partner, CVD SOLUTIONS & JJOVERSEAS, Mumbai

Over the last three decades of my practical experience in hi-tech farming, I have seen one lesson repeat itself: open-field farming leaves too much to chance. A good season can reward you, but unseasonal rain, heatwaves, or pest attacks can undo months of work. That is why more farmers are turning to protected cultivation as a practical way to reduce risk and improve returns.

For farmers moving toward a more planned, high-value model, protected cultivation can improve consistency, crop quality, and market timing instead of leaving income entirely to seasonal price swings.

WHY MORE FARMERS ARE MOVING UNDER PROTECTION

In India, where landholdings are shrinking and weather is becoming less predictable, open-field cultivation is harder to manage profitably. Protected cultivation gives farmers more control over rain, heat, insects, and crop quality by making growing conditions less dependent on outside uncertainty.

When temperature, humidity, irrigation, and crop protection are

managed better, both yield and quality usually improve. In high-value crops, the biggest advantage is often not just more production, but more consistent production.

CHOOSING THE RIGHT PROTECTED CULTIVATION SYSTEM

Protected cultivation is not one technology. The right structure depends on crop, climate, budget, management capacity, and market plan. The best choice is the one that fits your purpose—not simply the most advanced one.

1. Shade Net Houses

For many growers, a shade net house is a sensible starting point. It is relatively affordable and helps where crops suffer from harsh sunlight, heat stress, or certain flying pests.

- **Income Impact:** Lower capital cost and quicker returns, especially for crops that fetch better prices outside their normal season.

2. Naturally Ventilated Polyhouses (NVPH)

Naturally ventilated polyhouses are widely used in India because they offer more protection than a net house while remaining practical for many commercial growers. For crops such as cucumber, coloured capsicum, and most commercially grown flowers, they can improve scheduling and market timing.

- **Income Impact:** Better timing can help growers reach the market when open-field supply is lower and prices are stronger.

3. Climate-Controlled Greenhouses

Climate-controlled greenhouses suit crops with enough value to justify higher investment. They allow tighter environmental control and can

https://doi.org/10.52151/aet2026502.1922

support high-quality production, but they also require strong management and technical oversight.

- **Income Impact:** Higher-quality output can support supply to modern retail, hospitality, and premium institutional buyers.

4. Hydroponics and Precision Automation

When combined with protected structures, hydroponics, fertigation, and precision irrigation can improve water use efficiency, reduce soil-borne disease problems, and make production more predictable. These systems work best where both economics and management skills are strong.

- **Income Impact:** Better space use, lower disease pressure, and more predictable production can improve earnings per square metre.

5. Protected Orchards

Fruit growers also benefit from anti-hail nets, shade nets, and rain shelters, especially in regions facing frequent weather extremes. In many orchards, these structures are becoming an important risk-management tool rather than an optional extra. They help protect fruit from direct damage, reduce issues such as sunburn and surface cracking in some crops, and improve the chances of harvesting produce that meets market expectations for appearance, uniformity, and saleable quality.

- **Income Impact:** Protective nets reduce damage from hail, heat, birds, and bats, helping growers maintain fruit quality and reduce sudden crop losses.

HOW PROTECTED CULTIVATION IMPROVES FARM INCOME

The income advantage usually comes from three things working together:

better timing, better quality, and lower production risk.

- **Off-season advantage:** Protected cultivation helps time harvests for periods when supply is lower and prices are better.
- **Quality premium:** Better-looking, more uniform produce can attract stronger prices from urban and organised buyers.
- **Risk mitigation:** Structures reduce losses from weather shocks and help stabilise annual cash flow.

PRACTICAL ADVICE BEFORE YOU INVEST

Government support can reduce the burden of initial investment, but subsidies should be treated as support—not as the main reason to build a project. A protected structure should make business sense even before subsidy is counted.

My strongest advice is simple: learn first, invest second. Understand the technology, operating costs, labour needs, crop cycle, pest risks, and market before you commit. Many projects fail not because the structure was wrong, but because planning was weak.

Marketing must be planned early. Protected cultivation often produces a more uniform and more perishable crop, so depending only on the local *mandi* may not be enough. If possible, line up buyers in advance and match production to real demand.

LOOKING AHEAD

Hi-tech farming asks growers to think beyond production alone. It also requires discipline in cost, quality, timing, and sales. Protected cultivation can be a strong tool, but it works only when backed by skill, planning, and patience.

For farmers willing to learn and build market linkages before expanding, protected cultivation can make farming more stable, more resilient, and more rewarding than relying entirely on the open field.

In the next print/online issue of KJ, I will share ***'CD's 10 Commandments for Protected Cultivation'*** - a practical checklist for anyone planning to enter this space.