

Uttarakhand Program for Advanced Development of Apple Cultivation (UTPADAC)

Under Apple Mission 2030



Key highlights of policy

	Target 5,000 Ha under High-Density Apple Orchards in 8 years
	Aim to more than double farmer income
	Use of High-Density Apple Rootstocks (Malling Series)
\bigcirc	Promotion of latest apple varieties
	Incentives and support for farmers





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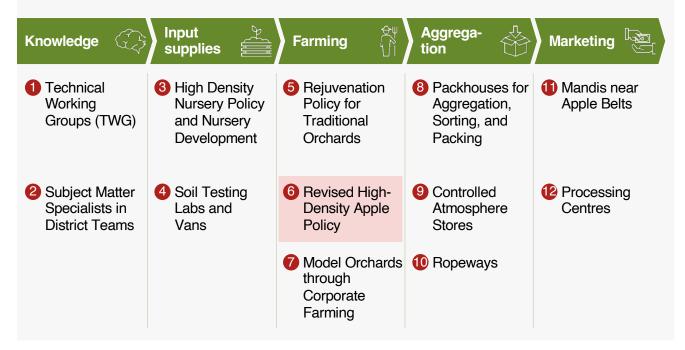


Overview of Apple Mission 2030

The Apple Mission of the Govt. of Uttarakhand aims to boost apple production in the State by almost 10 times from current levels and increase farmer income by 10-15 times through 12 projects across the end-to-end Apple value chain. This program will solve challenges across the value chain and create an ecosystem which can deliver benefits to apple producers and establish the Uttarakhand brand of Apples on a national as well as international platform. The 12 projects to boost Apple value chain in Uttarakhand are indicated below.

Exhibit 1

Projects under Apple Mission 2030



This document covers project #6 which aims to promote high-density apple cultivation in the State.



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Background & Context for High-Density Apple Policy

The current productivity of normal density apple crop in Uttarakhand is 2.5 MT/Ha which lags behind its Indian peers (Union Territory of J&K is at 10.2 MT/ Ha and Himachal Pradesh is at 5.6 MT/Ha) while global average productivity is 19 MT/Ha. Comparison of the current productivities of the major apple producing states in India is provided below.

Table 1

Comparison of productivities of major apple producing states in India

State / UT	Production ('000 MT)	Area ('000 Ha)	Productivity (MT/Ha)
Jammu & Kashmir	1,719	167	10.2
Himachal Pradesh	644	115	5.6
Uttarakhand	65	26	2.5
All India	2,437	313	7.8

By scientific intervention and adoption of high-density apple plantations, Uttarakhand's apple productivity can be increased significantly. This can in turn, increase farmer income through better quantity and quality of produce on the same area of land. The benefits of adopting high-density apple plantation and a comparison with traditional apple plantation are indicated below.

Table 2

Advantages of High-Density Plantation vs. Traditional Plantation

	High-Density plantation	Traditional plantation
Number of plants	More than 2,000 plants can be accommodated per Ha of land	Only 250 plants can be accommodated per Ha of land
Yield	Upto 60 MT/Ha	Upto 12 MT/Ha
Quality	70-80% grade A apple produce	30-40% grade A apple produce
Commercial bearing	Starts from 3 rd Year	Starts from 7 th Year
Management	Management practices like pruning, fertilization are easier due to smaller plant	Management practices are more difficult due to larger size and spread of the plant

Uttarakhand Program for Advanced Development of Apple Cultivation [UTPADAC] aims to provide the necessary financial, technical and execution support to farmers to establish high-density apple orchards. Over the next 8 years, the scheme targets to establish at least 5,000 Ha of high-density apple plantations.

The policy includes the following key features over the former Mission Apple Yojana:

- Increased land coverage targets for high-density apple cultivation
- Involvement of Professional Orchard Developers to assist farmers in the set-up and maintenance of orchards
- Inclusion of bank as a third party stakeholder in the Joint Inspection Team and step-wise release of Govt. subsidy - 40% after setup of orchard, 35% after verification that 90% of the plantation has survived during the stress period (September–October) and final 25% after first fruiting to protect interests of farmers
- · Revision of cost norms for the high-density rootstocks

Objectives

- Increase productivity of apple orchards and boost apple production
- · Increase farmer income and raise their quality of life
- Reduce migration from villages by creating more resources for livelihood
- Promote Uttarakhand as a leading producer of high-quality apples





Roles and Responsibilities of Stakeholders



In addition to stakeholders, there is provision for third party monitoring to enable reporting/inspection of the field activities to check for leakages in the process of implementation. Such monitoring by a team of at least 2 expert members can be held after a minimum period of every 6 months. Team members may be retired horticulture experts from central/state agriculture universities, or retired directors/ joint directors from apple growing states in India. The team will be assisted by Department of Horticulture & Food Processing, Uttarakhand and their expenses will be met out of the administrative budget under this policy.

A. Farmers

Definition

• Holders of valid Udyaan Card issued by the Department of Horticulture and Food Processing, Uttarakhand, registered cooperatives and self help groups

Roles and Responsibilities

- Undertake cultivation of high-density apple orchard on own or land leased for a minimum period of 25 years with support from the Department and Professional Orchard Developers. In case high-density is not feasible, undertake cultivation of seedling apple orchard
- Provide farmer's share of the set-up costs. Conduct land development and pit digging activities to make the land ready for plantation of high-density apple clonal rootstocks
- Undertake maintenance of the orchard as per the guidelines provided by the Professional Orchard Developer and the Department
- Participate in and sign the Joint Inspection Reports along with allied documents for release of incentive

B. Professional Orchard Developers

Definition

• Entrepreneurs and organisations with experience in development of high-density apple orchards who would be empaneled by the Department of Horticulture and Food Processing to assist farmers in the set-up and maintenance of these orchards

Roles and Responsibilities

- Undertake set-up of the high-density apple orchard under the supervision of the Department and with consent of the farmer within the timelines specified in this policy or as per latest notification by the Department
- Arrange and set-up high-density apple planting material, trellis system, micro-irrigation system, anti-hail net and any other equipment required for the establishment of the high-density apple orchards as specified in this policy
- Assist Department in conducting feasibility check for suitable rootstock applicable to the land specified by the farmer in the application
- Prepare Detailed Project Report (DPR) with all details like varieties, trellis, micro irrigation, anti hail net, specification of other components, farmer's share, loan amount and incentives along with the timeline for completion
- Arrange plant material through import/local nurseries/universities/government bodies with relevant documents
- Prepare plantation map with details of planted varieties in the orchard
- Participate in the Joint Inspection Team to monitor the orchard development
- Handhold the farmer till first fruit bearing

C. Department of Horticulture & Food Processing

Definition

• Employees, representatives and field officers of the Department of Horticulture and Food Processing, Uttarakhand

Roles and Responsibilities

- Serve as nodal body for implementation of this policy and create awareness
- Empanel Professional Orchard Developers through an Expression of Interest (EoI), who would assist farmers in the on-ground set-up of high-density apple orchards
- Provide necessary technical guidance and information to farmers, for e.g. knowledge about clonal rootstocks, support for submission of online application etc., and organize training programs for beneficiary farmers
- Accept/reject farmer applications on first come first serve basis after ascertaining the feasibility of land and selected rootstock and variety with the assistance of Professional Orchard Developer(s)
- Review DPR submitted by Professional Orchard Developers. On the approval of DPR, issue work order to the concerned Developer
- Determine and keep up to date the set-up costs and specifications of different high-density rootstocks and apple varieties to be covered under this policy
- Conduct frequent checks to verify planting material quality, true-to-type variety etc.
- · Participate in the JIT to check the progress of set-up of orchard
- Appoint Mission Director as the nodal implementation officer for the policy

D. Uttarakhand State Cooperative Bank Ltd.

Definition

• Employees, representatives and appointed nodal officers of the bank

Roles and Responsibilities

- Create cells at Zonal / Divisional / Headquarter level to support the Department in the implementation of this policy
- Manage all financial transactions related to this policy such as receipt of grant from the government, apportionment and disbursal as specified in this policy, monthly financial reconciliation and reporting to the Department and transfer of unutilized funds back to the Department
- Provide loans to farmers up to the limits specified in this policy
- Participate in the JIT to check the progress of set-up of orchard



Targets and Cost Norms

A. Policy Targets

Year-wise land coverage targets under UTPADAC Policy are defined below in Table 3. The Policy aims to cover 5,000 Ha of land under high-density apple orchards over the next 8 years. While the policy seeks to promote high-density under M9 and MM111 rootstocks, provision is made for seedling rootstock for areas where high-density is not feasible. The policy caps the set-up of seedling orchards at not more than 5% of land coverage target for that year.

Further, pilots for other rootstock types like G Series, etc. will be conducted by the Central/State universities and the Department shall test their suitability for Uttarakhand's conditions based on which they may be included in future updates to the policy.

Table 3

Target land coverage under this policy

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Target Land Coverage (Ha)	100	500	500	500	500	900	1,000	1,000
Target Land Coverage (Acre)	247	1,235	1,235	1,235	1,235	2,223	2,470	2,470
Subsidy %	60%	60%	60%	60%	60%	60%	60%	60%

B. Set-Up Costs

Incentives will be provided to farmers to take up high-density apple farming, on a maximum set-up cost which is defined below for different rootstocks like M9, MM111 and Seedling. The below cost estimates may be subject to revisions as per any latest notification issued by the Department.

The farmers will have the option to choose their preferred rootstock. Horticulture Department will assist farmers with necessary knowledge and technical guidance about different rootstocks.

Table 4

Cost Estimate for M9 at density of 900 plants per acre (2.25m x 2m)

	Specification	Total Cost* (INR)
1	Land Development	40,000
2	Pit Digging and filling (2x2x2 ft.)	60,000
3	Cost of Planting Material (@Rs 300 / plant, 3-5 feathers each plant)	2,70,000
4	Compost and water soluble Fertilizers (20:20:20)	45,000
5	Plant Protection Chemicals	5,000
6	Trellis with Installation	3,52,000
7	Micro-irrigation with Installation	47,500
8	Anti-Hail Net with Installation	1,80,000
9	Mulching Mat 100 GSM	45,000
10	Angle iron supported barbed wire fencing (horizontal- 5 wire, diagonal- 2 wire; angel iron above ground: 5.5 ft, below ground: 1.5 ft)	1,92,000
	Total Cost for 1 Acre	12,36,500**
*Inclusiv	o of CST ** Poundad off	

*Inclusive of GST

** Rounded off

Table 5

Cost Estimate for MM111 at density of 540 plants per acre (3m x 2.5m)

	Specification	Total cost* (INR)
1	Land preparation / development	40,000
2	Pit Digging and filling (2.5x2.5x2.5 ft.)	35,000
3	Cost of Planting Material (@Rs 300 / plant, 3-5 feathers each plant)	1,62,000
4	Compost and water soluble Fertilizers (20:20:20)	7,000
5	Plant Protection Chemicals	5,000
6	Micro-irrigation with installation	30,000
7	Anti-Hail Net and GI poles with Installation	2,70,000
8	Mulching Mat 100 GSM	45,000
9	Angle iron supported barbed wire fencing (horizontal- 5 wire, diagonal- 2 wire; angel iron above ground: 5.5 ft, below ground: 1.5 ft)	1,92,000
	Total Cost for 1 Acre	7,86,000**
*Inclusi	ve of GST ** Rounded off	

Table 6

Cost Estimate for seedling at density of 440 plants per acre (3m x 3m)

	Specification	Total cost* (INR)
1	Land Preparation	10,000
2	Pit Digging and Filling (3x3x3 ft.)	30,000
3	Cost of Planting Material (@Rs 150 / plant, 3-5 feathers each plant)	66,000
4	Compost and Fertilzers	4,000
5	Plant Protection Chemicals	2,000
6	Micro-irrigation with installation	30,000
7	Angle iron supported barbed wire fencing (horizontal- 5 wire, diagonal- 2 wire; angel iron above ground: 5.5 ft, below ground: 1.5 ft)	1,92,000
	Total Cost for 1 Acre	3,34,000**

*Inclusive of GST ** Rounded off

C. Eligibility Conditions

• The incentive will be provided for a minimum area of 2 Nalis (0.04 Ha) to maximum area of 100 Nalis (2 Ha) per beneficiary. Incentive will be calculated pro-rata as per the land size of the applicant



05

Implementation Process for High-Density Orchards

A. Incentive Structure

The incentives to be provided are listed in the tables below. The scheme will be valid till 2030 unless notified otherwise.

Farmers are required to deposit their share of the contribution with the bank, which shall directly disburse the incentives. They can also avail an interest-free loan (upto INR 3 lakh for small and marginal farmers and upto INR 5 lakh for farmer groups) under the Deen Dayal Upadhyay Sahakari Kisan Kalyan Yojana. The government would provide a 60% subsidy on the set-up cost to the selected farmers.

Table 7

Incentive Structure for M9 and MM111 rootstocks (INR)

Cost category	Contribution (%)	M9 (900 plants / acre)	Contribution (%)	MM111 (540 plants / acre)	
	Per Acre Cost Break-Up				
Farmer Cash Deposit	~5%	61,825	~5%	39,300	
Farmer Labour Expenses (Pit digging, land dev.)	~10%	1,00,000	~15%	1,15,000	
Farmer Bank Loan*	~25%	3,32,775	~20%	1,60,100	
Total Govt. Share	60%	7,41,900	60%	4,71,600	
Total Cost**	100%	12,36,500	100%	7,86,000	

* Interest free loan up to INR 3 lakh for small and marginal farmers and up to INR 5 lakh for farmer groups can be availed under Deen Dayal Upadhyay Sahakari Kisan Kalyan Yojana from the Uttarakhand State Cooperative Bank. Farmers can also deposit cash if they do not wish to avail the loan facility.

** Calculation for 1 Acre, to be reduced pro-rata as per land size

B. Execution Process

B1. Empanelment of Professional Orchard Developers

- Professional Orchard Developers shall be empaneled by the Department of Horticulture to develop high-density orchards for farmers
- The empanelment shall be conducted through an Eol with minimum eligibility criteria to ensure the quality of the material and services provided. Applications under this Eol would be open during the period 1st December to 31st December on an annual basis or as notified by the Department
- The empanelment shall remain valid for a period of 3 years, post which reapplication will be required

B2. Farmer Application

- Farmers can apply for incentives under this policy through an online portal from 1st January each year
- Applications will remain open till such time that the target land area proposed for the particular year (as defined in the policy) is met or 31st March, whichever is earlier. Any exceptions to the timelines will be notified by the Department
- After the upper limit is reached, further applications may be considered on a case-to-case basis or may be wait-listed for the next year
- Incase the waitlisted applicant initiates activities such as pit digging, bio-fencing etc in their land, said applicant will be given priority in the following year. However, subsidy for the established components will not be payable in the following year
- Chief/District Horticulture Officer shall accept/ reject the application on a first come first serve basis after ascertaining the feasibility of land with the support of the Professional Orchard Developer(s)
- In case of non-feasible land, the application shall be rejected with valid reasons
- Farmers will be notified by the Department about approval or rejection of their application within 15 days from the date of submission
- Incase the farmer does not wish to empanel a Professional Orchard Developer, he/she may establish the orchard directly. Applicable roles and responsibilities of a Professional Orchard Developer such as preparation of DPR and arrangement of planting material will be fulfilled by the farmer itself. Subsidy disbursement to the farmer will be done by Direct Benefit Transfer (DBT)

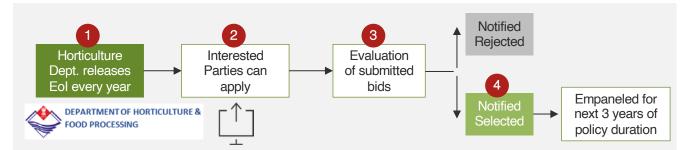
B3. Execution

- After selection of farmer on the basis of feasibility of land, Detailed Project Report (DPR) will be prepared by selected Professional Orchard Developer in consultation with the Chief/District Horticulture Officer
- DPR will contain all the details of rootstocks, varieties, trellis system, microirrigation, anti-hail net, specification of other components, finances, farmer's share, loan component etc., as per the guidelines in the policy. Based upon DPR, Department will issue the work order to the Professional Orchard Developer clearly indicating the time frame for completion of the project work. This DPR shall serve as a guidance book for all stakeholders

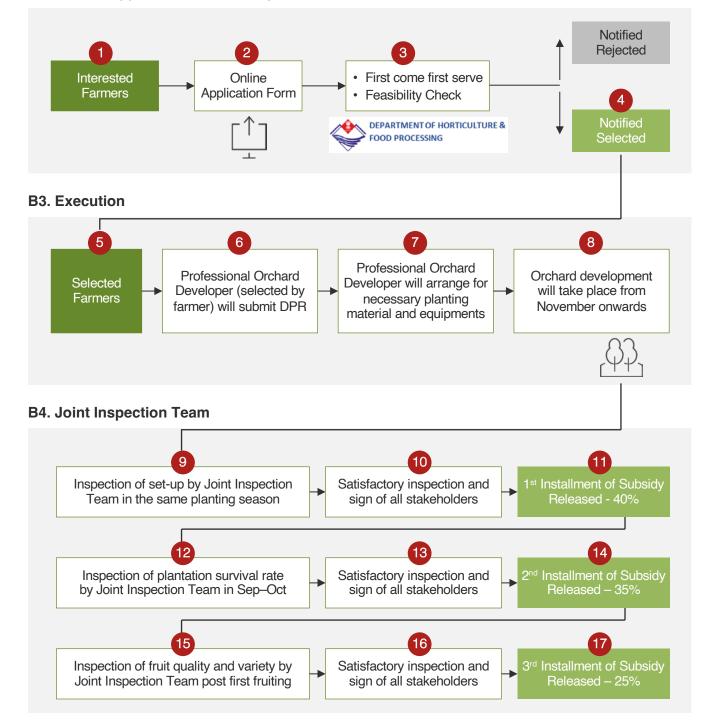
Exhibit 3

Execution Process for High Density Orchards

B1. Empanelment of Professional Orchard Developers [1st December – 31st December]



B2. Farmer Application [1st January – 31st March]



- Within 15 days of issue of work order, farmer will be required to open an account with Uttarakhand State Cooperative Bank Ltd., and deposit his/her share, failing which the work order shall be revoked. Farmer will deposit 40% of his / her share after issuance of work order. 35% of farmer share will be paid after 1st successful Joint Inspection Report. Remaining 25% of farmers share will be paid after 2nd successful Joint Inspection Report
- Post completion of these steps, the Professional Orchard Developer will develop the orchard

B4. Joint Inspection Team

- Joint Inspection Team (JIT) for the policy will consist of:
 - Chief/District Horticulture Officer or his/her nominee
 - Concerned In-Charge of Horticulture Mobile Team
 - Farmer or his/her nominee
 - · Professional Orchard Developer or his/her nominee
 - Nodal Bank Officer
- Government incentive share will be released in the following manner:
 - 40% of Government incentive amount
 - » 1st JIT inspection shall be conducted when installation of Trellis, Micro Irrigation, Anti Hail System and Plantation is complete
 - » The JIT upon satisfactory verification that the required systems have been installed, shall recommend release of 40% of government incentive
 - » The JIT inspection shall be conducted within 15 days from the date the Professional Orchard Developer makes an application to the concerned Chief/District Horticulture Officer. The JIT shall submit its recommendation/ report to the concerned bank in the District. The payment shall be released by the bank to the Professional Orchard Developer within 10 days of receipt of satisfactory Joint Inspection Report
 - » In case the JIT is not satisfied with the installation of systems, the deficiencies shall be pointed out to Professional Orchard Developer, who shall make good the said deficiencies at his/her own cost and thereafter again approach the concerned Chief/District Horticulture Officer for Joint Inspection

Remaining 35% of Government incentive amount

- » 2nd JIT inspection shall be conducted to check the plant survival rate in the orchard.
- » The JIT upon satisfactory verification that 90% of the plantation has survived, shall recommend release of 35% of government incentive
- » The JIT inspection shall be conducted in the month of September October after the Professional Orchard Developer makes an application to the concerned Chief/District Horticulture Officer. The JIT shall submit its recommendation/ report to the concerned bank in the District. The payment shall be released by the bank to the Professional Orchard Developer within 10 days of receipt of satisfactory Joint Inspection Report
- » In case the survival rate is found to be less than 90%, the deficiencies shall be pointed out to Professional Orchard Developer, who shall make good the said deficiencies at his/her own cost and thereafter again approach the concerned Chief/ District Horticulture Officer for Joint Inspection

Remaining 25% of Government incentive amount

- » 3rd JIT inspection shall be conducted when plants come into first fruit bearing and prove true to type in terms of variety and quality
- » The JIT upon satisfactory verification that the plants are true to type, shall recommend release of remaining 25% of government incentive
- » The JIT inspection shall be conducted within 15 days from the date the Professional Orchard Developer makes an application to the concerned Chief/District Horticulture Officer. The JIT shall submit its recommendation/ report to the concerned bank in the District. The payment shall be released by the bank to the Professional Orchard Developer within 10 days of receipt of satisfactory Joint Inspection Report
- » In case the plant material does not prove true to type, the Professional Orchard Developer is bound to replace the plant material free of cost and pay the loss as assessed by Horticulture Department. In case of failure, the balance 25% of government incentive shall be forfeited, the Professional Orchard Developer will be blacklisted and necessary proceedings may be initiated against the Professional Orchard Developer



06

Implementation Process for Seedling Orchards

A. Incentive Structure

This option is available to only those farmers who are in areas where high-density farming is not feasible. Area of land which can be developed under Seedling rootstock will be capped at maximum of 5% for year's total target.

Table 8

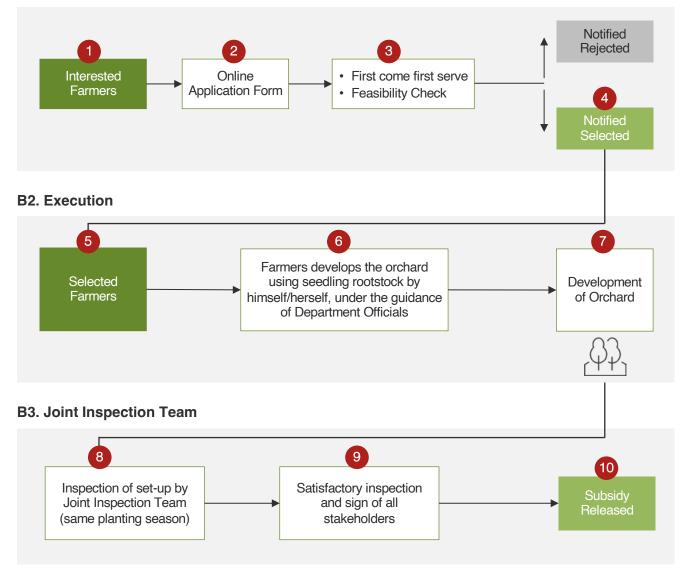
Incentive Structure for Seedling (INR)

Cost category	Contribution (%)	Seedling (440 plants/acre)
Per Acre	Cost Break-Up	
Farmer share	40%	1,33,600
Subsidy given to the farmer	60%	2,00,400
Total Cost for 1 Acre*	100%	3,34,000

* Calculation for 1 Acre, to be reduced pro-rata as per land size

Execution Process for Seedling Orchards

B1. Farmer Application [1st December – 31st December]



B. Execution Process

B1. Farmer Application

- Farmers can apply for incentives under this policy through an online portal from 1st January to 31st March each year
- Applications will remain open till such time that the target land area (in Ha) proposed for the particular year (as defined in the Incentives section) is met or 31st March, whichever is earlier. Any exceptions to the timelines will be notified by the department
- After the upper limit is reached, applications will be wait listed for the next year
- Chief/District Horticulture Officer shall accept/ reject the application on a first come first serve basis after ascertaining the feasibility of land
- Only in cases when high-density apple farming is not possible, farmers can undertake development of seedling based apple orchards
- In case of non-feasible land, the application shall be rejected with valid reasons
- Farmers will be notified by the Department about approval or rejection of their application within 15 days from the date of submission

B2. Execution

- Once selected, farmer will himself / herself develop the orchard
- The Department will provide necessary guidance and assistance to the farmer

B3. Joint Inspection Team

- Joint Inspection Team (JIT) for the policy will consist of:
 - Chief/District Horticulture Officer or his/her nominee
 - Concerned In-Charge of Horticulture Mobile Team
 - Farmer or his/her nominee
 - Professional Orchard Developer
 - Nodal Bank Officer
- Government incentive share will be released in the following manner:
 - The Joint Inspection Team (JIT) upon satisfactory verification that the required systems and plantations have been installed, and at least 90% of plantation has survived, along with production of bills of purchase by the farmer, shall recommend release of government incentive
 - The JIT inspection shall be conducted within 15 days from the date the farmer makes an application to the concerned Chief/District Horticulture Officer. The JIT shall submit its recommendation/report to the concerned bank in the District, where the beneficiary has maintained his/her bank account, within 5 days of inspection. The payment shall be released by the bank to the farmer within 10 days of receipt of satisfactory Joint Inspection Report





Monitoring Structure

A. State Level Implementation and Monitoring Committee

A State Level Implementation and Monitoring Committee will be formed for the overall supervision of the project. This Committee will be chaired by the Additional Chief Secretary and Agriculture Production Commissioner. This Committee shall comprise of:

- Additional Chief Secretary and Agriculture Production Commissioner: Chairman
- Secretary, Agriculture and Farmer's Welfare
- Secretary, Finance
- Secretary, Co-operatives
- Director, Agriculture and Farmer's Welfare
- Director, Horticulture and Food Processing Department
- General Manager, NABARD
- Manager, Uttarakhand State Cooperative Bank or his / her nominee
- Scientist, ICAR
- Progressive Apple farmer / Horticulturist

B. District Level Implementation and Monitoring Committee

A District Level Implementation and Monitoring Committee will be formed for the monitoring and performance evaluation at a district level. This Committee shall comprise of:

- District Magistrate
- Chief Development Officer
- Chief / District Horticulture Officer
- Assistant Registrar, Co-operatives
- Representative, NABARD
- Representative, Uttrakhand State Cooperative Bank or District Cooperative Bank
- In-charge of concerned garden mobile team centre
- Progressive Apple farmer / Horticulturist

C. State Project Management Unit (SPMU)

State Project Management Unit (SPMU) will be formed will be for monitoring, assessment and timely assistance at a Directorate Level. The Director of Horticulture and Food Processing will be the Nodal Officer with the following members:

- Director, Department of Horticulture and Food Processing
- Joint Director, Horticulture and Food Processing
- Concerned Deputy Director
- Technical Personnel
- Computer Operator

Policy Review

The Department of Horticulture and Food Processing and / or the Department of Planning will periodically review the progress against policy targets to assess status of implementation and impact created. The review will be conducted in the 3rd, 5th and 7th year of the Apple Mission. Parameters to be assessed include but are not limited to:

- Number of applications by farmers each year and achievement of land coverage targets
- Effectiveness of empaneled Private Orchard Developers based on farmer feedback
- · Productivity of Apple plantations set-up under the scheme
- Set-up costs incurred by farmers / professional orchard developers to update applicable subsidies if required
- · Adherence to roles and responsibilities defined for various stakeholders

(In addition to the listed parameters, the reviewing Department may include additional parameters of assessment as required)

Based on the outcomes of the review process, the Department of Horticulture and Food Processing may issue revised guidelines to address any emerging gaps / concerns and take decisions on the scheme such as continue / discontinue / modify.

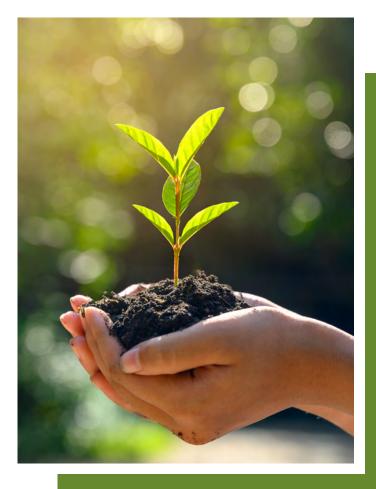


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Uttarakhand Program for Advanced Development of Apple Cultivation (UTPADAC)