### No. Ft. 15-434/10 (D)DAP/2017-18/Vol.III Himachal Pradesh Forest Department

### Dated Shimla, the

From: Pr. CCF (HoFF) HP

Shimla

To: All CCFs/CFs(T) & (WL) in HP All DFOs (T) &(WL) in HP

Subject:- Nursery raising protocols and allocation of budget thereof.

Memo:-

In continuation to this office memorandum number Ft. 15-434/10(D)DAP/2017-18/ Vol.III dated 24.01.2018.

- 2. As intimated in the letter quoted ibid, the standard operating procedures (SOPs) finalized for raising poly bag plants are enclosed herewith as **Annexure-I** for favour of your information, guidance and further necessary action. The revised cost norms, with year wise split and detailed calculations, which have been submitted to GoHP for approval, are also enclosed herewith as **Annexure-II**. The approval of these cost norms is still awaited from the government and formal approval of the same will be conveyed to you in due course. However, these proposed norms are being sent to you for facilitating planning in the meantime, as the nursery raising operations are already underway in the field.
- As per the new nursery protocol, the plants being sown this winter 3. will become available for planting only in the year 2019-20 in case of normal Chil and BL plants, and in the year 2020-21 in case of normal Deodar and Ban plants. For tall plants, this availability will be further shifted by one more year respectively. Thus, to work out the species-wise number of plants required to be sown this winter, it will be imperative to take into consideration the projected targets of plantations under different plantation schemes up to the year 2020-21, if only Chil and BL plants are to be planted in a division, and upto the year 2021-22 if Ban and Deodar plants are also to be planted. A chart depicting the year when the plants being sown this winter will become available for planting is attached as Annexure-III for guidance. Further, we shall be maintaining almost the same planting targets for the next few years. Hence, for calculating the requirement of plants for the next few years, the current year's plantation targets may be taken as the basis. However, certain flexibility in this respect will be permitted in divisions where new projects are coming up or where this year's targets are abnormally high or low because of some reason. The allocation of

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nursery budget for raising of plants will be spread over a minimum of 3 financial years for normal Chil/ B.L. plants to 6 financial years for Fir plants, depending upon species and size of plant being raised. The budget being allowed for nursery this year will be the cost for first financial year operations for the plants being sown this year and their corresponding nursery cost for subsequent financial years will be allotted as per financial year wise split of cost given in **Annexure-II** in the following years.

- 4. There will be some carry-over nursery stock of different age gradations from this year which will also be used for planting in next and subsequent years. The proportionate nursery cost for maintenance of this carry over stock will also be made available in next and subsequent years
- 5. It is, therefore, requested that species wise detail of plants, for which first year operations of sowing are being undertaken this year, commensurating with projections of plantation targets for 2018-19 to 2021-22 be sent to this office at the earliest on the enclosed **Annexure** IV, so that the tentative budget, allocated now is revised and finalized based on actual figures. For divisions proposing Fir plantation, the projections are to be given upto 2022-23.
- Following further guidelines are issued in this respect:-
  - I. In casualty replacement, tall plants will be replaced with tall plants and normal with normal plants.
- II. While calculating requirement of plants, the component of maintenance be also kept in view.
- III. For tall plants, the maintenance will be for 3 years only and the number of plants required for casualty replacement will also be less. In this respect please refer to detailed norms for tall planting conveyed vide this office endorsement No. Ft. 1790-2/71 (D)/2011-12/Vol.VIII (Norms), dated 12.5.2017.
- IV. The flexibility with respect to number of tall plants to be planted per hectare in different schemes has already been allowed. Hence, while calculating the requirement of plants for different years, the actual number of tall plants to be planted per ha in each site may be kept in view.
- V. The most crucial point in determining the requirement of plants over the next years, for which nursery raising needs to be initiated this year, is that DFOs have to pre-select the areas to be taken up for planting upto the year 2021-22 (2022-23 in case of divisions where Fir is also to be planted) and plan species-wise/size-wise requirement of plants for each such area. From next year onwards, this exercise will have to be done for further one more year only. In essence, we shall be selecting areas for planting and planning nursery stock for them 4 years in advance.

An early action with regard to submission of species-wise details of plants on proforma given in **Annexure**- IV may please be taken so that final revised allocation for nursery raising may be communicated to you.

Encl: As above

Chief Conservator of Forests (Finance) O/o Pr .CCF(HoFF) HP

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Copy along with enclosures is forwarded for favour of information to:

- 1. All Pr. CCFs/Addl. Pr. CCFs in H.P.
- 2. All C. P. D.s of externally aided projects in HPFD
- 3. All CCFs/ CFs/ DFOs in HPFD except (T) and (Wl)

The copy of this office letter of even No. dated 24.1.2018 is also enclosed for favour of their information.

Encl: As above

Chief Conservator of Forests (Finance)

O/o Pr .CCF(HoFF) HP

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# Himachal Pradesh Forest Department **Standard Operating Procedure (SOP) Growing Tall Polybag Plants in Forest Nurseries**

Plantation program of the State Forest Department involves plantations to improve the status of existing forests and also to bring new areas under tree cover through afforestation. Nursery has, thus, come to play a crucial part of this plantation program, and successful establishment of the plantations is critically dependenton the quality of planting stock used in this plantation program. It is, therefore, imperative thatthe planting stock to be used for raising plantations is of very high quality.

Raising nurseries was hitherto linked to the annual plantation norms usually resulting in use of small, less than one year old nursery stock in the plantation programs. This situation also saw use of a limited number of faster growing and non-fodder plant species for plantations, with less emphasis on locally useful native species. The success of these plantations has not been commensurate to the efforts and inputs gone into raising these plantations. The survival percentage has been rather low. With the left over sites now available for plantations being very refractory and suffering from heavy biotic influences, the existing plantation practices need to be suitably modified to get optimum results for the efforts. One of the strategies is to use high quality stout planting stock raised in large polybags to ensure quick establishment of plantations. This strategy also provides opportunity to take good quantity of rich soil to the refractory soil to provide initial growing medium to the plant. Shift in the plantation strategy is also required to achieve the stated objective under the Sustainable Development Goals to enhance the tree cover in the State from the present 26.4% to 30% by 2030.

With the objective of developing high quality stout planting stock, the Himachal Pradesh Government vide its Notification No FFE-F (5)-1/2017 dated 20.4.2017 has delinked the nursery component from the plantations. The intention of the delinking is that plants in the nursery can be retained for more than one year to develop these into sturdy and good quality planting stock. In pursuance of this delinking, the cost norms for raising tall plants in nurseries were further notified by GoHP and the same were conveyed to you vide this office endorsement No. Ft. 1790-2/71(D)2011-12/Vol-VII (Norms) dated 12.5.2017. The implementation of this new nursery regime has thrown up some technical and administrative issues, the prominent of these being -

- Parameter defining the tall plants, a)
- Nursery practices to raise tall plants, and b)
- Financial year-wise split of budget allocation as per norms. c)

These issues have been deliberated upon in detail at the Forest Headquarterand based on literature review, data collected from existing nurseries in the State, interaction with the field staff and scientists from local Research Institutes, and the practices being followed in the neighbouring States, Standard Operating Procedure (SOP) for raising tall plants innurseries located in different agro-climatic zones of the State have been developedand are laid down as under:

## 2. General Criteria to Define Tall Plants

A vast array of tree species is raised in nurseries across the State for planting in different agro-climatic zones in the State. This set of species can be broadly clubbed into -

- (i) Species primarily grown in the temperate region, and
- (ii) Species primarily grown in the sub-tropical region.

Within this broad classification, there are conifers and broad-leaved species for both these regions. Whereas some of the native conifer tree species like 'Fir' (Abiespindrow and A. spectabilis), 'Juniper' (Juniperusmacropoda), and 'Chilgoza' (Pinusgerardiana), and native broad-leaved tree species like 'Kafal' (Myricaesculenta) and (Quercusbaloot) are very slow growing and are difficult to develop as tall plants with the nursery technologies presently available, a large number of other conifer and broad-leaved tree species can be easily grown into tall plants in the nursery and used as stout planting stock under plantation program.

A 'tall' plant by definition means that it should have some minimum pre-decided height. However, the tall seedlings become plantation worthy only if they have required sturdiness to withstand field conditions after planting out. The morphological indicator that is usually associated with the seedling height to determine whether the seedling is sturdy enough or not is its 'collar diameter'. Whereas the height of seedling is considered to provide initial gain from the competing weeds/ brush wood in the field, the collar diameter provides the much needed sturdiness and root mass to the seedlings for their early establishment. Thus, every 'tall seedling needs to have a pre-decided height and an appropriate seedling height:collar diameter ratio at the time of planting out. Different researchers have suggested different thumb rules for ascertaining this ratio for different species. A ratio of 1:1.25 between seedling height (in mtrs.) and collar diameter (in cms) is considered appropriate for 'tall' nursery plants for most of the species. Converted to centimeters, this seedling height and collar diameter ratio would be 80 cm: 1cm. It would mean that a nursery plant of 1.2 meter (120 cm) would need to have a minimum collar diameter of 1.5 cm.

# 3. Principals of Growing Tall Plants in Nurseries

Growing 'tall' plants in nurseries is a highly cost intensive activity and utmost care and concern needs to be accorded at all levels of planning and implementation to ensure the best outputs. For this, the general principles listed below may be kept in view:

- Tall Seedlings should be Sturdy: Success of tall plants in the field depends upon their sturdiness. It is, thus, necessary that all tall plants are well developed and sturdy. Sturdy tall seedlings are characterized by the following -
  - (a) Balanced Shoot :Root Ratio: For the species in the region, a shoot : root ratio of 3:1 seems to be appropriate. However, in no case this ratio should be more than 4:1. This shoot: root ratio forms the basis for deciding the size of polybags for raising tall plants. It means that to grow a tall sturdy seedling of a minimum height of 120 cm, a polybag of the length 45 cm would be required.

(b) Balanced Height: Collar Diameter Ratio:- For the species in the region, a ratio of 1:1.25 between height of seedling (in mtrs.) and collar diameter (in cms) seems appropriate. Converted to centimeters, this height and collar diameter ratio would mean that to grow a nursery plant of 1.2 meter (120 cm) height would need to have a minimum collar diameter of 1.5 cm.

For growing tall plants of the desired sturdiness, the following need to be ensured:

- Polybag should be of appropriate size based on the sturdiness parameters given
- Quality and thickness of larger polybags should be appropriate since these have to remain in the nursery for upto two years.
- Only well-formed, healthy, and disease free initial nursery stock is selected for shifting into larger polybags for developing into tall plants.

It also needs to be always remembered that a good, balanced growing medium is a prerequisite for growing of tall, sturdy plants in nurseries. Thus, ensure that the pot mixture to be used for growing tall, sturdy plants is of very high quality.

No filled Polybags should be without Healthy Seedling: Most of the tree species have germination percent that is less than 100%. Thus, for every 100 seeds sown, some fail to germinate. Direct sowing in polybags is, therefore, likely to result insome polybags remaining empty, and requiring re-sowing after about two-three weeks. The seedlings emerging as a result of re-sowing usually fail to catch up with the growth of the initial seedlings and remain lanky. Many a times, more than one seed is sown in every polybag to ensure that at least one seedling germinates in every polybag. Firstly, this practice requires larger number of seeds that come at a cost. Secondly, it adds on another activity to remove extra seedlings from the polybags in which more than one seedling has germinated.In addition, in some species like 'Deodar' with good seed year occurring once a few years, seed availability is usually a limiting factor and wastage of seedlings cannot be afforded. In some species, the seeds are very small and very difficult to sow directly in polybags.

The situation can be addressed by sowing the seeds of priority species and species with minute seeds first in specially prepared germination beds, and then pricking out healthy seedlings in 10cm x 22cm (4"x9") or 12cm x 22cm (5"x9")polybagsat 2leaved stage or even later depending upon the species.

Sowing of seeds in germination beds also allows for -

- (a) intensive care during seed germination process,
- (b) more time for preparing proper soil mix and filling of polybags,
- (c) grading of seedlings at the time of pricking out in polybags, and
- (d) lesstime the polybags are required to be kept in nursery.

The shifting of seedlings from 10cm x 22cm (4"x9") or 12cm x 22 cm (5"x9") polybags to larger polybags, say in 22 cm x 40 cm (9"x16") or 25cm x 45cm (10"x18"), to make these into tall plants will follow the standard nursery practice.

Always remember that no filled polybag should remain without a healthy seedling.

# 4. Nursery Parameters for Tall Plants for Himachal Pradesh

Based on the general criteria to define 'tall' plants and the general principles for raising tall plants, the following parameters have been arrived at for raising polybag based tall nursery plants. These parameters have been correlated to the average age the seedlings are likely to take in nurseries to attain these parameters. Data collected from existing nurseries in respect of species for temperate and sub-tropical regions in the State, interaction with the field staff and Research Institutes, and the practices being followed in the neighbouring States has been relied upon to arrive at species-specific parameter4s to define 'tall' plants proposed to be raised in the State.

### i. Species for the Temperate Zone:-

S.No.	Species	Age (in years)	Min. Height (inmtrs.)	Min. Collar Diameter (in cm.)	Season/ Month of Sowing
1	Deodar (C. J.	3.5	0.90	1.1	Winters
2	(Cedrusdeodara) Oaks (Quercus spp.) (Ban = Q. leucotrichophora; Bani = Q. glauca; Mohru = Q. floribunda)	3.5	1.0	1.2	-do-
3	Surai (Cupressustorulosa) Rakhal/ Thuna (Taxuscontorta)	3.5	1.0	1.2	-do-
4	Khanor (Aesculusindica) Akhrot (Juglansregia) Maple (Acer caesium/ A. spicatum) Birdcherry (Prunuscornuta) Chuli (Prunusarmeniaca) Behmi (Prunusmera) Paja (Prunuscerasoides) Misc. broad-leaved species	2.5	1.2	1.5	-do-

PahariPeepal (*Populusciliata*), Willow (*Salix* spp.) and Robinia (*Robiniapseudoacacia*) can be easily grown into tall plants with cuttings/ root-shoot cuttings and can be planted as naked root seedlings. Thus, these species have been excluded from the polybag nursery.

# ii. Species for the Sub-Tropical Zone:-

S.No.	Species	Age (in years)	Min. Height (inmtrs.)	Min. Collar Diameter (in cm.)	Remarks .
1	Chir	2.5	1.0	1.2	
2	(Pinusroxburghii) Harar	2.5	1.0	1.2	
3	(Terminaliachebula) Amla (Phyllanthusemblica) Anar/ Daru	2.5		1.5	
	(Punicagranatum) Beul (Grewiaoptiva) Khair	2.3	1.2	1.5	
	(Acacia catechu) Shisham (Dalbergiasissoo) Misc. broad-leaved species				
4	Bahera (Terminaliabellirica) Jamun (Syzygiumcumini)				
	Arjun (Terminaliaarjuna) Ritha (Sapindusmukrrosi) Kachnar/ Karial (Bauhinia variegata)	2.5	1.5	1.8	
	Aam/ Amb ( <i>Mangiferaindica</i> ) Shahtoot/ Chimu				erate (1800-2000 m

Note: The parameters given above are for average altitudinal zones in the temperate (1800-2000 m) and sub-tropical (600-800 m) regions in the State. There is likely to be some variation in the growth of the species depending upon the change in altitude. A variation of upto (-) 10% from standard growth parameters given above for areas lying at altitudes higher than the average altitude shall, thus, be acceptable.

# 5. General Nursery Practices for Raising Tall Plants

Growing of nursery plants of forest species has been a regular activity of the Forest Department and the field staff is well aware of the processes involved in raising such nurseries. Growing of sturdy tall nursery seedlings is, however, a new activity and needs meticulous planning, use of high quality material, efficient implementation and good personal care.

(i) Planning for Tall Plants: Growing tall plants is different from conventional plants as these plants have to usually remain in the nursery for more than two physical years, spreading over more than three financial years. It, thus, requires detailed forward planningin terms of species to be raised, number of plants of each species, nursery space required, physical age till when the plants are required to be maintained in the nursery before planting out and the financial years it spreads over to attain the physical age. Thus, if a species takes 3.5 years in nursery for its seedling to be qualified as tall plant, the planning for its nursery would start fiveyears before its field planting. Therefore, the starting point for such nursery planning is the detailed year-wise planting program, along with detail of species to be planted, for at least the next 10-years, which would need to be updated every year.

Delinking of nurseries from the plantation norms provides an opportunity to include many native species of good local socio-economic value in the plantation programs. The choice of species for long-term nursery planning is very important and the following need to be kept in view:

- Every nursery shall have a long-term (10-year) nursery plan that would be approved in writing by the concerned Divisional Forest Officer.
- Major emphasis shall be on growing seedlings of native species of local use and timber value. In case any exotic is to be grown in the nursery, the concerned Divisional Forest Officer shall record the justification for the same.
- Nursery Plan for the Division shall be vettedfinancial year-wise by the concerned Circle Officer and species-wise abstract of the same shall be submitted to the headquarters by 30April every year alongwith the biannual Nursery Return for the period ending 31 March.

Remember that long-term nursery plan requires year-wise earmarking of plantation areas.

(ii) Pot Mixture: The commonly used pot mixture consists of soil, sand and organic matter (FYM, compost or vermi-compost). The ratio of these ingredients varies from site to site depending upon the type of soil available. In the conventional polybag based nursery, the plants are raised in small polybags of the size 10cm x 22cm (4"x9") or so. The requirement of soil being limited, it is usually collected locally from one corner of nursery or from around the nursery. Sand is seldom used and some locally procured FYM or humus from the forest is added to provide for the organic matter. In some cases, vermi-compost prepared locally in the nursery is being added as organic matter. The quality of such pot mixture is highly variable leading to variable seedling output.

With the shift to raise plants in larger polybags of the size 22 cm x 40 cm (9"x16") or 25cm x 45cm (10"x18") or so, the requirement of soil and other constituents of pot mixture has become quite largethat cannot be made good from within the nursery. A necessity has therefore arisen to import soil and such other ingredients from outside to be able to make high quality pot mixture to produce sturdy tall seedlings of uniformly high quality.

The following need to be kept in mind for making high quality pot mixture for raising tall sturdy plants -

- The soil procured/ brought from outside should be from a good source and should be free from pebbles, weeds, etc.
  - The soil should be pounded to break lumps and sieved to make it powdery and free from pebbles, roots, other woody material, etc.
  - The powdered soil should be turned 2-3 times and exposed to sun to kill
- Since there is generally a large variation in quality of FYM, a complete shift to use ofvermi-compost should be made.
  - The vermi-compost should be completely dried, powdered and thoroughly
  - It is useful to make vermi-compost in the nursery itself. The DFOs may create one specialized fully equipped central facility in their Division to make vermi-compost of uniform quality. Vegetable waste from local vegetable market can be used as raw material and arrangement for cow dung can be made with local gaushalas.
- Get the pot mixture tested in the laboratory for
  - pH ratio. Deodar and most other plants of the region prefer slightly acidic soils. Therefore, keep pH ratiobetween 5.5 and 6.5 by manipulating the proportion of ingredients.
  - C:N ratio and other Nutrients to know deficiencies and correction regime.
- Deodar and most of other plants of the region require good inoculum of the associated mycorhiza in the potting mix. This requirement can be fulfilled by adding some forest soil to the potting mix.
- The potting mix should be sieved again before filling in the polybags to ensure proper mixing of all ingredients and to sieve out any pebble, weed, etc.
- Good potting mix should be light and appropriately porous for optimum growth of plants. The lighter the pot mixture, the better it is for growth of plants. A balanced mix of soil, sand and vermi-compost in a ratio of 1:1:1 is usually adequate to get this type of light potting mix. Where the soil is heavy, addition of coco-peat/ dried saw dust is useful to make the pot mixture light. As a thumb rule, the weight of polybags of the size 10cm x 22cm (4"x9"), when filled to the rim with such pot mixture (sun dried), should be not more than 750 gms.

Remember that the pot mixture is the growing media on which the plants will grow in the nursery. This growing medium will also provide initial growth impetus to the plants in the field. The pot mix should, thus, be of very high quality.

(iii) Seed Sources: The quality of the plantations is squarely dependent upon the quality of seed/ germplasm. Seed/ germplasm should always be collected/ procured from known sources/ provenances of high quality. It is generally considered better to collect seed/ germpalsm from the pre-identified local sources. Seed stands/ seed production areas/ plus trees identified for the region following a rigorous protocol form the best sources of seed. Procurement of seed from unknown sources, unless certified, should be best avoided.

- The seed should be graded and only the best quality seed should be used for sowing.

- It is highly desirable to get the seeds tested as to their viability and germination percent to ensure production of planned number of seedlings.

(iv) Sowing Seeds in Germination Beds/ Trays: Sowing seeds in germination beds/ trays provides an opportunity to accord focused attention to the seed germination. The germination beds can be prepared in a well-drainedand shade free portion of the nursery. It is advisable to prepare base of these beds with a 5 cm thick layer of coarse sand to improve drainage and make lifting of seedlings easier. The layer of sand should be covered first with a 2-3 cm thick layer of fumigated soil and then with a 2-3 thick layer of a mixture of soil and coarse sand. Level and lightly compact each layer with a flat board. It is important to fumigate the soil well to avoid any chances of fungal infection to seedlings/ damping off. All larger seeds can be sown in open germination beds.

The germination trays are useful for germinating minute seeds. The growing medium in this case consists of thoroughly washed coarse sand.

- (v) <u>Pricking out Seedlings in Polybags</u>: Shifting of seedlings grown in germination beds to polybags requires care and observance of the following -
  - Pricking into polybags should be done in cool, cloudy weather or during evenings.
  - Thoroughly water the filled polybags to settle the soil before pricking seedlings into these.
  - Lift the seedlings from germination bed using a stick to prevent breaking of the roots.
  - Make a holedeep enough to accommodate roots of seedlings in the polybags using a stick.
  - Insert seedling in the hole and then lift the seedling slightly to open out the roots.
  - When planting the seedling in polybags, make sure that the taproot is not bent.
  - Irrigate the polybags well after planting seedlings.

Pricking of seedlings from germination beds to polybags provides the first opportunity towards grading and ensuring quality planting material. Thus,

- Select seedlings with a straight tap root. Discard seedlings with bent taproot (J root), or the ones with a few root hairs.
- The seedlings should have straight and stout stem and well-formed apical bud.
- Do not use diseased/ deformed seedlings. Such seedlings should be taken out from the nursery program and destroyed/ culled.
- (vi) Shifting of Plants and Root Pruning:Polybags with seedlings are usually kept in nursery beds in rows. Keeping plants at one place for long is likely to results in their roots striking through the drainage holes of the polybags into the bed soil. Such outgrown roots, at the time of lifting of polybags for planting out, tend to break resulting in the plants suffering from shock, adversely affecting their

survival in the field. The polybags, therefore, need to be periodically shifted and outgrown roots pruned to prevent roots from striking the bed soil.

At the time of shifting, always remember to -

- Trim any roots that might have emerged out from the polybag. This trimming should be done with sharp knife/ secateurs to avoid any injury to the plant.
- Start lifting the polybags from one end of the bed. If roots have already struck the bed soil, don't pull the roots out. Rather tilt the polybag to one side and carefully cut the roots below the polybags by using trowel or sharp knife.
- Hold the plant for pruning of roots in a way so as not to cause any disturbance to the root system in the polybag.

Root pruning also triggers growth of smaller roots in the polybags and helps plants gain better collar diameter and become sturdy. Such root pruning and shifting of polybags 1 to 2 months before planting out is highly recommended to prepare the plants for field conditions.

The best time for shifting and root pruning is just before the onset of monsoons and/ or in winters before the new flush of leaves starts emerging.

- (vii) Grading of Plants: An associated activity with shifting of polybags is size-wise grading of plants. The plants kept in close rows tend to have fierce competition for sunlight making some plants to grow taller than others. Size-wise grading at the time of shifting helps the plants to have better exposure to sunlight for optimum growth of plants.
  - (viii) Spacing between Rows: Filled polybags are usually arranged in close rows in the nursery beds with no space between the rows. This causes competition amongst plants for sunlight resulting in some plants growing taller than others. Whereas closer spacing helps the plants gain initial height, it results in (a) the shorter plants getting smothered and remaining undersized, and (b) the taller plants becoming lanky, without the required sturdiness for successful planting out in the field. Thus, appropriate space to plants, especially those that need to be kept in nursery for 2-3 years, is required to be provided between rows for good development of their collar diameter and to make these sturdy. As a thumb rule, during the first shifting of such polybags, a row to row gap equivalent to width of the polybag, viz. 25 cm for a polybag of 25cm x45 cm, should be created. Depending upon the growth of plants, this spacing between the rows could be increased or plant to plant spacing could be provided during the second shifting. Always remember to provide adequate side support to the polybags by raising soil along the sides.

Also remember that spacing between rows requires advance planning of nursery space. As an example, 1000 'Deodar' seedlings pricked out into 10cm x 22cm (4"x9") polybags during monsoons of year-1, would require 10m2 of nursery bed space. During year-2, these deodar seedlings would be transplanted into polybags of the size 25cm x 45cm (10" x 18") and the nursery bed space required would be 40m<sup>2</sup>. During the year-3, the polybags would be subjected to shifting, grading and spacing when inter-row gap would be provided, and the nursery bed space required at this would be 80m<sup>2</sup>. Thus, raising 1000 tall plants of 'Deodar' in the nursery would require a nursery bed space of 80m<sup>2</sup> from year-3 onwards. It also means that to produce a stock of 1000 tall 'Deodar' plants in the nursery year after year, a bed space of  $130 \text{ m}^2$  ( $10\text{m}^2$  for first year plants  $+40\text{m}^2$  for two year plants  $+80\text{m}^2$  for three year plants) is required.

(ix) Weeding: Despite all due care, some weeds do germinate in the polybags, and need to be removed to prevent these from adversely affecting the growth of seedlings. Always use good trowel of appropriate size (usually 2 cm wide) for removing the weeds from the polybags. Weeding also provides an opportunity to break the crust that tends to form on the top surface of soil in the polybags due to irrigation. This crust needs to be periodically broken to provide for aeration to the soil and for better percolation of water.

All care should be exercised during weeding so as not to cause any damage to the collar of the seedlings.

- (x) Pruning of Branches: Some seedlings develop side branches from the very beginning, affecting the shape of bole and height growth of the plants. These side branches, about one third of the height of the seedlings from the collar should be pruned to make the plants develop straight bole and attain faster height growth. Such pruning should be done very carefully with sharp blade/ knife/ secateurs close to the main stem in such a way so as to not cause any damage to the main stem.
- (xi) Elevated Platforms: Plants raised in polybags tend to end up with coiled roots or their roots striking through the polybag into the nursery bed soil. This issue is usually addressed by repeated root pruning at the time of shifting and grading of plants in nursery beds or at the time of planting out. This situation can, however, be better addressed by keeping polybag plants on specially made elevated platforms made of bamboo or iron mesh. Keeping polybags on elevated platforms provides for self pruning of roots emerging out of polybags. This way the chances of roots getting coiled are also reduced.

We would need to gradually move towards developing elevated platforms for keeping polybags.

(xii) <u>Using Root Trainer Plugs</u>: The root trainer technology has a widely accepted promise for raising high quality nursery plants as it allows for better root formation. Not much effort has been made towards using this technology in the State. This technology can be put to effective use in raising tall plants in the nurseries. For example, the seedlings of Deodar raised in germination beds can be first pricked out into root trainers of appropriate size, kept in these containers for 5-6 months and the plugs transferred first to polybags of 12 cm x 22 cm (4" x 9") or directly in polybags of 22 cm x 40 cm (9"x16") or 25cm x 45cm (10" x 18") or so.

The use of root trainers would require utmost care in respect of the following -

Selection of root trainers of appropriate size for different species and in view of the time for which the plants are required to be maintained in the nursery. Root trainers of 250cc to 350cc capacity would be appropriate for plants of most of the species to be kept in nursery for upto one year. ■ Pot mixture to be used for root trainers should be very light and porous to allow for better aeration, better moisture retention and better root development. Very light organic materials like coco peat can be used in a ratio of 1:1:1 with soil/ sand, and vermicompost/ organic manure to make the potting mix porous and

Getting elevated platforms in adequate numbers in place for keeping the filled

root trainers.

Since using root trainers would amount to quantum shift in nursery management in the State, it would need putting in place mechanisms for constant supplies of material and facilitating confidence building of every nursery manager through hand-on practice to raise root trainer based plants. Thus, separate proposals to raise root trainer based plants would need to be prepared and submitted for funding.

(xiii) Transportation of Tall Plants: The nursery plants are liable to maximum damage during transportation from nursery to the planting site. Tall plants are quite heavy and utmost care needs to be exercised during their transportation so as to ensure that the ball of earth in the polybags is not disturbed and the plants are not damaged. The plants should not be lifted from the stems. Plants should not be dumped in the vehicles for transportation. Rather these should be neatly stacked in rows. If more than one row of plants needs to be carried in the same vehicle, then use wooden planks as segregator of rows. Specially designed wooden rakes for carrying the plants on back - as being commonly used locally for carrying stones/ bricks - can be designed for carriage of plants to and from the vehicle.

### 6. Cautions in Tall Planting

Tall planting does provide an initial impetus for quick establishment of plantations. However, tall planting needs care in respect of the following -

■ The site selected for tall planting should have good soil depth to enable digging of pits large enough to accommodate the tall seedlings with entire ball of earth.

The tall plants raised in large polybags are quite heavy and need special care during transportation/ manual carriage to the plantation site. It needs to be ensured that no damage is caused to either the plant or the ball of earth during transportation.

■ Tall plants, after field planting, are likely to suffer from plantation shock needing watering. Therefore, tall planting should ideally be carried out during rainy season or at places where post planting irrigation facility is available.

 Growing tall plants in nurseries is time and cost intensive exercise. Utmost care needs to be taken in protecting the tall planting from damage due to grazing, fire, etc.

### 7. The Cost Norms - Financial Year-wise Split

The cost norms for raising tall plants have already been conveyed vide Government Notification quoted supra. These rates were based on the basic wage rate of Rs. 200/-. The wage rates have since been enhanced to Rs. 210/=. Also in view of modifications contained in these new nursery protocols, the nursery operations have undergone some changes. Hence, the cost norms have again been calculated. These revised cost norms are under approval with GoHP. These proposed cost norms are as under:-

### FOR NON TRIBAL AREAS

S.No.	Name	Size	Finar	Financial Year-wise split of cost (Rs.)						
5.110.	of species	BIE C	Year I	Year II	Year III	Year IV	Year V	Year VI	per plant cost Norm	
1	Chil/BL	Normal	7.37	4.02	2.01	0	0	0	13.40	
2	Chil/BL	Tall	7.37	30.43	6.58	3.55	0	0	47.93	
3	Ban	Normal	8.33	4.02	4.02	2.01	0	0	18.38	
4	Ban	Tall	8.33	4.02	30.43	6.58	3.55	0	52.91	
5	Deodar	Normal	1.41	10.59	3.52	1.51	0	0	17.03	
	Deodar	Tall	1.41	10.59	29.93	6.07	3.04	0	51.04	
6	Fir	Normal	1.37	7.02	3.52	17.80	3.52	1.51	34.74	
7	Fir	Tall	NA	NA	NA	NA	NA	NA	NA	

### FOR TRIBAL AREAS

S.No.	Name	Size	Finar	ncial Ye	ar-wise	split of	cost (R	s.)	Total
B.140.	of species		Year I	Year II	Year III	Year IV	Year V	Year VI	per plant cost Norm
1	Chil/BL	Normal	8.66	5.03	2.52	0	0	0	16.21
2	Chil/BL	Tall	8.66	34.43	8.22	4.43	0	0	55.74
3	Ban	Normal	9.91	5.03	5.03	2.52	0	0	22.49
4	Ban	Tall	9.91	5.03	34.43	8.22	4.43	0	62.02
5	Deodar	Normal	1.70	12.73	4.40	1.89	0	0	20.72
6	Deodar	Tall	1.70	12.73	33.80	7.59	3.80	0	59.62
7	Fir	Normal	1.65	8.47	4.40	20.40	4.40	1.89	41.21
8	Fir	Tall	NA	NA	NA	NA	NA	NA	NA

The cost norms will become effective on their final approval from the Government.

Financial Year Wise split of per Plant Mursery Cost for different Species to be raised in Poly Bags

Thancial	YEAY (II)	Non Tribal	lst 7.37	2 <sup>nd</sup> 4.02	3rd 2.01	415	UTE	a) a	
ONIV O	Normal 1½ Tear Old)	n Tribal	7 8.56	)2 5.03	2.52	1		1	13.40 15.21
Chill Other 3Ls	Tall (2% Year Old)	Non Tribal	7.37	30.43	0.58	3.55	1		47.93
		Tribal	8.66	34.43	3.22	4.43	1 -	1	55.74
	Mor (2%)	Non Tribal	8.33	4.02	4.02	2.01	1	1	100 130 130 130
ಚಿತ್ರಗ	Mormal (2½-Year Old)	Tribal	9.91	5.03	5.03	2.52		1	الله الما الما
5	Tall (3% Year Old)	Non	00.33	4.02	30.43	00.150	(3) (5)	1	(A)
		Tribal	9.91	5.03	34.43	8.22	4.43	1	52.02
	Norma (2½ Year G	Non Tribal	1.41	10.59	3.52	1.51	1	'	17.03
Deodar	rold)	Tribal	1.70	12.73	4.40	1.89	1	1	20.72
5	Tall (3½ Year Old)	Non Tribal	1.41	10.59	29.93	6.07	3.04	1	51.04
	= Old)	Tribal	1.70	12.73	33.80	7.59	3.80	1	59.62
Fir/ Spruce	Normal (4½ Year Old)	Non Tribal	1.37	7.02	3.52	17.80	3.52	l~7 0.1 i~7	34.74
e de la constant de l	nal ir Old)	Tribal	1.65	8.47	4.40	20.40	4.40	1.39	41.21

Pr. Chief Conservator of Forests (HoFF)

from the Hell

# COST OF RAISING NORMAL CHIL & BROADLEAVED PLANTS IN POLYBAGS IN THE NURSERY (1½ year old)

Calculated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. 262.50 for

	A 6 % 1. 3 d had	Unit	Rate	Qty.	Amount	For Tribal
Sr.	Activity				For Non	For Tribal Areas
10.					Tribal areas	Altas
10.	First Financial Ye	ar Activ	ities			
	(From Seed sowin	no to Ma	rch)			
	(From Secu Son	- I		0.70	19.80	24.7
	to the including layout	Sqm	28.70	0.69		
1	Preparing of nursery beds including layout	No./100	381.99	1	381.99	. 477.4
2	f sites 5"x9" including collection,	110.,		1	/	
-	carriage, sieving of soil, mixing of manner			1	-7.06	2.1.1
	insecticide/ pesticide	No./100	27.30		27.30	
3	Lining of P/haps	%	23.80		23.80	
4	Sowing of seed in polythene bags	0'0	7.42		7.42	-
5	Mulching of polythene bags	0/0	23.80		4.76	
6	Passwing of seed (20%)	No./100	2.52		50.40	-
7	Hand watering of P/bags (20 days)	Kg	7.00	17	119.00	
8	Cost of vermi compost	LS			15.00	
9	Cost of insecticide/ pesticide	Kg	160.00		48.00	
10	Cost of polythene bags	LS	20.00			
11	Cost of seed Cost of procurement of sand including its carriage upto	Си М1	500.00	0.039	19.50	17
12	- to the same of t				PIDE BE	865.8
	nursery  Total Cost in First Financial Year				736.97	
	Total Cost in First Financial Cost of Say				737.00	T 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
					7.37	8.6
	Per plant cost for 1st year	The A. Marian			1	i
	Second Financial	Vear Ac	tivities			
	Second Financial (April to N	March)				
		No./100	2.52	2 120	302.40	
1	Hand watering of P/bags (120 days)	No./100	16.52		CC 100	
2	Weeding and hoeing of plants (4 times)	No./100	33.60		33.60	0 42.
3	Shifting and grading of plants	NO./100	-		402.08	502.
	Total Cost in Second Financial Year	to the line of the spings	Tenantina to take	16. 24(2)	402.00	
ider in	Offsity	THE PERSON NAMED IN COLUMN				
	Per plant cost for 2nd year		A 100 Table		4.02	<i>i</i>
	and the state of t					
	Third Financial Y		ivities			1
	(April to N					0 189
	Hand watering of P/bags (60 days)	No./100	2.52			
1	Weeding and hoeing of plants (1 time)	No./100	16.52	_	00.01	
2	outsian and arading of plants	No./100	33.60	) 1		
3	Total Cost in Third Financial Year				201.32	
	The College of the Co	1.35 35			201.01	
		There is a second at the			2.01	
1.13	Per plant cost for 3rd year				1340,00	0 1621.
	A STATE OF THE PROPERTY OF THE	de Tomaster Comme	STANGE (EVALUE)	A Later have	110.0	
	G. TOTAL of costs for 3 years  Total cost per Plant	+			13.40	0 16.

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Principal Chief Conservator of Forests (HoF) Himachal Pradesh, Shimla-171001

# COST OF RAISING TALL CHIL & BROAD LEAVED PLANTS IN POLY BAGS IN

NURSERY (2½ year old)

Categlated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. 22.50 for

	culated for 100 plants on the wage rate of Rs. 2  Tribal are	Umit'	Rate	Qiy.	Amount (	in Rs.)
	Activity	CHIL	1		For Non	For Tribal
Sr.					Tribal areas	Areas
VO.	First Financial Yea	ar Artiv	ities		*	
	First Financial 1 ez	N/Harry	)			24.75
	(Seed sowing to	dui	28.70	0.69	19.80	
	bade including layour	No./100	381.99	1	381.99	477.49
1	Preparing of nursery beds including collection, Filling of P/bags of size 5"x9" including collection, Filling of mannure/humus,	NO./100				
2	Filling of P/bags of size 5"x9" including correlations of P/bags of size 5"x9" including correlations of mannure/humus, carriage and sieving of soil, mixing of mannure/humus,				25.00	34.13
	insecticide/ pesticide	No./100	27.30	1	27.30	29.75
3	Lining of P/bags	0%	23.80	1	23.80	2.50
<del></del>	Sowing of seed in polythene bags	%	7.42	1	7.42	= 0.5
<del>-</del> 5	Mulching of polythene bags	0/0	23.80	0.2	4.76	
	1 (2)(0%)	No./100	2.52	20	50.40	
6	Hand watering of P/bags (20 days)		7.00	17	119.00	119.00
. 7	Hand watering of 17000	Kg	7.00		15.00	15.00
8	Cost of vermi compost	LS		0.3	48.00	48.00
9	Cost of insecticide/ pesticide	Kg	160.00		20.00	=0.00
10	Cost of polythene bags	LS	20.00		10.50	10.56
11	Cost of seed	Cu Mt	500.00	0.039	19.50	,
12	Cost of procurement of sand including its carriage upto					1005.05
	nursery				736.97	
	Total Cost in First Financial Year				737.66	866.00
	This Cost in First	建化学 沙北			157.00	
100					7,3	0.77
					The state of the s	0.77
	Per plant cost for 1st year				The state of the s	
	Per plant cost for 1st year  Second Financial	Year Ac			The state of the s	0.77
	Per plant cost for 1st year  Second Financial N  (April to N	Year Ac Aarch)	tivities		7.37	8.60
	Per plant cost for 1st year  Second Financial N  (April to N	Year Ac			7.37	8.60
1	Per plant cost for 1st year  Second Financial N  (April to N	Year Ac Aarch)	tivities	) 2.0	7.3°	5 73.1
	Per plant cost for 1st year  Second Financial N  (April to N  Preparing of nursery beds including layout for	Year Ac Aarch)	tivities	0 2.0	7.37	7 8.66
	Per plant cost for 1st year  Second Financial N  (April to N  Preparing of nursery beds including layout for accommodating 9"x16" P/Bags	Year Ac Aarch) Sym	tivities	0 2.0	7.3°	5 73.1
1	Per plant cost for 1st year  Second Financial N (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/	Year Ac Aarch) Sym	tivities	0 2.0	7.3°	7 8.66
1	Per plant cost for 1st year  Second Financial Y  (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including humus/vermicompost/ accords grown in 5"x9" P/bags	Year Ac Aarch) Sym	tivities	0 2.0	7.3°	7 8.66
1	Per plant cost for 1st year  Second Financial N (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags	Year Ac Aarch) Sym	tivities	0 2.0	7.3°	7 8.66
1	Per plant cost for 1st year  Second Financial N (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags	Year Ac Aarch) Sym	tivities	0 2.0	7.3°	7 8.66
1	Per plant cost for 1st year  Second Financial Y  (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including humus/vermicompost/ accords grown in 5"x9" P/bags	Year Ac Aarch) Sym No./100	28.7/ 1111.8	0 2.0	7.3°	7 8.66 5 73.19 8 1389.8
1 2	Per plant cost for 1st year  Second Financial (April to Note t	Year Ac Aarch) Sqm No./100	28.70 1111.8	0 2.0	7,37  4 58.5  1 1111.8  1 61.2 20 302.4	7 8.66 73.19 8 1389.8 1 76.5 0 378.0
2	Per plant cost for 1st year  Second Financial Y  (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags	Year Ac Aarch) Sqm No./100 No./100 No./100	28.7/ 1111.8	2.0	7,3°  4 58.5  1 1111.8  1 61.2  20 302.4  4 66.0	7 8.66 73.19 8 1389.8 1 76.5 0 378.0 08 82.6
2	Per plant cost for 1st year  Second Financial Y  (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags	Year Ac //arch) Sym No./100 No./100 No./100 No./100	28.76 1111.8 61.2 2.5	2.0 8 8 1 2 12 2	7,3°  58.5  1 1111.8  1 61.2  20 302.4  4 66.0  34 938.0	7 8.66 5 73.19 8 1389.8 1389.8 1389.8 1389.8 1389.8 1389.8 1389.8
1 2 3 4 5	Per plant cost for 1st year  Second Financial (April to Note 1st)  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags Hand watering of P/bags (120 days)  Weeding and hoeing of plants (4 times)  Cost of vermi compost	Year Ac Aarch) Sqm No./100 No./100 No./100 No./100 Kg	28.7/ 1111.8 61.2 2.5 16.5	2.0 8 8 1 2 12 2	7,3°  1 58.5  1 1111.8  1 61.2  20 302.4  4 66.0  34 938.0  80.0	7 8.66 5 73.19 8 1389.8 1 76.5 0 378.0 1 8 82.6 1 938.0 1 938.0 1 938.0
2	Per plant cost for 1st year  Second Financial N (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags Hand watering of P/bags (120 days) Weeding and hoeing of plants (4 times) Cost of vermi compost Cost of insecticide/ pesticide	Year Ac Aarch) Sqm No./100 No./100 No./100 No./100 Kg LS	28.7/ 1111.8 61.2 2.5 16.5	2.0 8 8 1 2 12 2 10 13	7,3° 4 58.5 1 1111.8 1 61.2 20 302.4 4 66.0 64 938.0 2 320.0	7 8.66 7 73.19 8 1389.8 1 76.5 0 378.0 0 82.6 0 938.0 0 80.0 0 320.0
1 2 3 4 5 6	Per plant cost for 1st year  Second Financial N (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags Hand watering of P/bags (120 days) Weeding and hoeing of plants (4 times) Cost of vermi compost Cost of insecticide/ pesticide	Year Ac Aarch) Sqm No./100 No./100 No./100 No./100 Kg	28.70 1111.8 61.2 2.5 16.5 7.0	2.0 8 8 1 2 2 12 2 0 0 13	7,3° 4 58.5 1 1111.8 1 61.2 20 302.4 4 66.0 64 938.0 2 320.0	7 8.66 7 73.19 8 1389.8 1 76.5 0 378.0 0 82.6 0 938.0 0 80.0 0 320.0
3 4 5 6 7	Per plant cost for 1st year  Second Financial (April to Note 1st)  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags Hand watering of P/bags (120 days)  Weeding and hoeing of plants (4 times)  Cost of vermi compost	Year Ac Airch) Sqm No./100 No./100 No./100 No./100 Kg LS Kg	28.70 1111.8 61.2 2.5 16.5 7.0	2.0 8 8 1 2 2 12 2 0 0 13	7,3°  1 58.5  1 1111.8  1 61.2  20 302.4  4 66.0  4 938.0  2 320.6  2 105.0	7 8.66 5 73.19 8 1389.8 138
1 2 3 4 5 6 7 8	Per plant cost for 1st year  Second Financial N (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags Hand watering of P/bags (120 days) Weeding and hoeing of plants (4 times)  Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto	Year Ac Airch) Sqm No./100 No./100 No./100 No./100 Kg LS Kg	28.70 1111.8 61.2 2.5 16.5 7.0	2.0 8 8 1 2 2 12 2 0 0 13	7,3°  1 58.5  1 1111.8  20 302.4 4 66.0 64 938.0 2 320.0 21 105.0  3043.1	7 8.66 7 73.19 8 1389.8 138
1 2 3 4 5 6 7 8	Per plant cost for 1st year  Second Financial N (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags Hand watering of P/bags (120 days) Weeding and hoeing of plants (4 times) Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto	Year Ac Aarch) Sqm No./100 No./100 No./100 No./100 Kg LS Kg Cu Mt	61.2 2.5 16.5 7.0	2.0 8 8 1 2 2 12 2 0 0 13	7,3°  1 58.5  1 1111.8  1 61.2  20 302.4  4 66.0  4 938.0  2 320.6  2 105.0	7 8.66 7 73.19 8 1389.8 138

		Unit	Rate	Qty.	Amount (	in Rs.)
	Activity	CHARL	Trance	(20)	For Non	For Tribal
Sr.	ait				Tribal areas	Areas
10.		4 . 10				,
	Third Financial Y	ear Ach	AILIES			
	(April to N	larch)			1.02.46	128.08
	Life Onviton P bags at a	Sq Mtr	28.70	3.57	1.02.40	120.00
1	Preparing nursery beds to shift 9"x16" P bags at a				186.80	233.50
	spacing of 9" row to row Shifting and Grading of Plants at a spacing of 9" row to	No./100	186.80	1	186.60	,
2	Shifting and Grading of Flants at a space of			100	3()2.40	378.00
	row : ED/base (120 days)	No./100	2.52	120	66.08	. 82.60
3	Hand watering of P/bags (120 days) Weeding and hoeing of plants (4 times)	No./100	16.52	4	657.74	822.18
4_	Total Cost in 3rd Financial Year			- 12.01 100.00		822.00
	Total Cost in 3rd Financia, 200 or say				658.00	
	Per plant cost for 3rd year				6.58	8.22
	Lea blant cost nor 2001					
	Fourth Financial	Van Ac	tivities			
	Fourth Fluancial (April to	Harrista A				
		No./100	2.52	60	151.20	189.00
i.	Hand watering of P/bags (60 days)	No./100	16.52	-	16.52	20.65
2	Weeding and hoeing of plants (1 time)	No./100	186.80		186.80	233.50
3	Chifting and Grading of Plants	140./100	1000		354.52	443.15
	Total Cost in fourth Financial Year			le de la constant	355.00	443,00
	UL Say	The second secon			3.55	4.43
	Per plant cost for 4th year			Tall Con	4793.00	5574.0
	G. TOTAL of costs for 4 years				47.93	
	Total cost per Plant			The State of the S	1 41.23	20.1

Principal Chief Conservator of Forests (HoFF) Himachal Pradesh, Shimla-171001

# COST OF RAISING NORMAL BAN PLANTS IN POLY BAGS IN NURSERY

# (2½ year old) Calculated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. 12.50 for Tribal areas

	Tribai an		Rate	Qty.	Amount (	in Rs.)
Sr.	Activity	Unit	TATE EC		For Non Tribal areas	For Tribal Areas
Vo.		d out in	1			
	First Financial Ye	ar Activ	menta)			
	(From Seed sowin	Sqm	28.70	0.69	19.80	24.75
1	Preparing of nursery beds including layout	No./100	381.99	1	381.99	477.49
2	g in 5"v0" including collection,	140./100	301.22			
_	carriage, sieving of soil, mixing of mannare,					
	insecticide/ pesticide	No./100	27.30	1	27.30	34.13
3	Lining of P/bags	%	23.80	1	23.80	29.75
4	Sowing of seed in polythene bags	0,0	7.42	1	7.42	9.28
5	Mulching of polythene bags	%	23.80	0.2	4.76	5.95
6	Resowing of seed (20%)	No./100	2.52	20	50.40	63.00
7	Hand watering of P/bags (20 days)	Kg	7.00	17	119.00	119.00
8	Cost of vermi compost	LS	-	-	15.00	15.00
9	Cost of insecticide/ pesticide	Kg	160.00	0.3	48.00	
10	Cost of polythene bags	Kg	152.60		115.98	144.98
11	Cost of seed	Cu Mt	500.00	-	19.50	19.50
12	Cost of seed  Cost of procurement of sand including its carriage upto	C.II IVII	300.00			
1-					832.95	
	Total Cost in First Financial Year Or say				633,60	
					8.33	9.91
	Per plant cost for 1st year					
	Second Financial	Year Ac	tivities			
	(April to N	darch)			. 202.40	378.00
	Hand watering of P/bags (120 days)	No./100	2.52			
1	Weeding and hoeing of plants (4 times)	No./100	16.52	2 4		
2	Weeding and noting of plants (	No./100	33.60	) 1	33.60	42.0
	a sending of plants	140./100	55.00			
3	Shifting and grading of plants	140./100	33.00		402.08	The state of the s
3	Cost in Second Financial Year	Nd./100			402.00	503,00
3	Total Cost in Second Financial Year Or say					503,00
	Total Cost in Second Financial Year Or say Per plant cost for 2nd year				402.00	503,0
	Total Cost in Second Financial Year On say Per plant cost for 2nd year Third Financial Y	ear Act		4	402.00	503.0
	Total Cost in Second Financial Year Or say Per plant cost for 2nd year	ear Act	ivities		402.00	503.0 5.0
	Total Cost in Second Financial Year On say  Per plant cost for 2nd year  Third Financial Y  (April to N	ear Act			4.02.00	503.00
1	Total Cost in Second Financial Year On say  Per plant cost for 2nd year  Third Financial Y  (April to N  Hand watering of P/bags (120 days)	'ear Act 'Aarch)	ivities 2.51	2 120	4.02.00 4.02 302.40 66.08	503.0 5,0 378.0 8 82.6
1 2	Total Cost in Second Financial Year On say  Per plant cost for 2nd year  Third Financial Y  (April to N  Hand watering of P/bags (120 days)  Weeding and hoeing of plants (4 times)	/ear Act /tarch) No./100	ivities	2 120	302.40 66.08 33.60	503,00 5.03 378.0 3 82.6 0 42.0
1	Total Cost in Second Financial Year On say  Per plant cost for 2nd year  Third Financial Y  (April to N  Hand watering of P/bags (120 days)  Weeding and hoeing of plants (4 times)	(ear Act /larch) No./100 No./100	ivities 2.51	2 120	302.40 66.08 33.60 402.08	503,00 5.03 378.0 8 82.6 9 42.0 502.6
1 2	Total Cost in Second Financial Year On say  Per plant cost for 2nd year  Third Financial Y  (April to N  Hand watering of P/bags (120 days)  Weeding and hoeing of plants (4 times)	/ear Act //arch) No./100 No./100 No./100	ivities 2.51	2 120	302.40 66.08 33.60	503.00 5.03 378.00 8 82.60 42.00 503.00

	Unit	Rate	Qiy.	Amount	
Activity	OHIL	Temps		For Non	For Triba
r.				Tribal areas	Areas
ૄ,		i vinti as			
Fourth Fina	ncial Year Act	IVILIES		*	
(A)	vil to June)			151.20	189.0
	No./100	2.52		16.52	
1 Hand watering of P/bags (60 days)	No./100	16.52		33.60	10
2 Weeding and hoeing of plants (1 time)	No./100	33.60			1
t moding of plants	· he			201.32	
The street was browning the street of the state of the st	all			201.00	-
	971-2			2.01	
Per plant cost for 40	h year			1838.00	2249
o more at of costs for	t years		-	18,3	8 22
Total cost pe	r Plant				

Principal Chier Conservator of Forests (HoFF)
Himachai Pradesh, Shimla-171001

# COST OF RAISING TALL BAN PLANTS IN POLY BAGS IN NURSERY

(3½ year old)

Calculated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. 202.50 for Tribal areas

	Activity	Unit	Rate	Qty.	Amount	
Sr. No.	Activity				For Non Tribal areas	For Tribal Areas
	First Financial Y	ear Activ	vities			
	(Seed sowing	to March	1)			0.1.7
	Preparing of nursery beds including layout	Sqm	28.70	0.69	19.80	, 24.7
1	True of plane of size 5"x9" including collection,	No./100	381.99	1	381.99	477.4
2	carriage, sieving of soil, mixing of mannure/humus,		77.20		27.30	34.1
3	Lining of P/bags	No./100	27.30	1	23.80	29.7
4	Sowing of seed in polythene bags	%	23.80	1	7.42	9.2
<del>-</del> 5	Mulching of polythene bags	%	7.42	1	4.76	5.9
	Resowing of seed (20%)	%	23.80	0.2		63.0
	Hand watering of P/bags (20 days)	No./100	2.52	20	50.40	
7	Cost of vermi compost	Kg	7.00	17	119.00	119.0
8	Cost of insecticide/ pesticide	LS	-	-	15.00	15.0
9	Cost of polythene bags	Kg	160.00	0.3	48.00	48.0
10		Kg	152.60	0.76	115.98	144.9
$\frac{11}{12}$	Cost of seed Cost of procurement of sand including its carriage upto	Си Мі	500.00	0.039	19.50	19.5
14	nursery				832.95	990.8
	Total Cost in First Financial Year	#456 2 5.15 s		Colonias i	833.00	991.0
· .	or say Per plant cost for 1st year	1 14 - 00 - 00 - 00 - 00 - 00 - 00 - 00			8.33	9.9
	Second Financial (April to N		. TYTELOS			. 0
1	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.0
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4		
3	Shifting and grading of plants			4	66.08	
	Siliting and grand of	No./100	33.60	1	33.60	42.0
	Total Cost in Second Financial Year	No./100	33.60	1		42.0 <b>502.</b> 6
	Total Cost in Second Financial Year Or say		33.60		33.60	42.0 <b>502.</b> 6
	Or say		33.60	1	33.60 4 <b>02.0</b> 8	502.6 503.0
	Or say Per plant cost for 2nd year Third Financial Y	lear Acti		1	33.60 402.08 402.00	502.6 503.0
	Or say  Per plant cost for 2nd year	lear Acti	vities	1	33.60 402.08 402.00 4.02	42.0 502.6 503.0 5.0
1	Or say  Per plant cost for 2nd year  Third Financial Y  (April to N  Preparing of nursery beds including layout for	lear Acti		1	33.60 402.08 402.00	42.0 502.6 503.0 5.0
1	Or say Per plant cost for 2nd year Third Financial Y (April to N	/ear Acti	vities	1	33.60 402.08 402.00 4.02	502.6 503.0 5.0
	Per plant cost for 2nd year  Third Financial Y  (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal	/ear Acti //arch) Sqm	vities  28.70  1111.88	1	33.60 402.08 402.00 4.02 58.55	42.0 502.6 503.0 5.0 73.1
2	Preparing of nursery beds including layout for accommodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/humus/vermicompost/insecticide/pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.	Year Acti March) Sqm No./100	vities  28.70  1111.\$8	2.04	33.60 402.08 402.00 4.02 58.55 1111.88	42.0 502.6 503.0 5.0 73.1 1389.8
	Per plant cost for 2nd year  Third Financial Y  (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.  Lining of P/bags Hand watering of P/bags (120 days)	/ear Acti //arch) Sqm No./100 No./100	28.70 1111.88 61.21 2.52	2.04	33.60 402.08 402.00 4.02 58.55 1111.88	73.1 1389.8 76.5 378.0
1 2	Per plant cost for 2nd year  Third Financial Y  (April to N  Preparing of nursery beds including layout for accomodating 9"x16" P/Bags  Filling of P/bags of size 9"x16" by collection, sieving and carriage of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.	Year Acti March) Sqm No./100	vities  28.70  1111.\$8	2.04	33.60 402.08 402.00 4.02 58.55 1111.88	82.6 42.0 502.6 503.0 73.1 1389.8 76.5 378.0 82.6 938.0

	Activity	Umit	Rate	Qty.	Amount	(in Rs.)
Sr.	Activity	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			For Non	For Tribal
No.					Tribal areas	Areas
1.74	Cost of insecticide/ pesticide	LS	-	-	80.00	80.00
8		Kg	160.00	2	320,00	320.00
9	Cost of polythene bags Cost of procurement of sand including its carriage upto	Cu Mt	500.00	0.21	105.00	105.00
10	nurserV				3043.12	3443.15
	Total Cost in Third Financial Year	The state of the			3043.00	3443,00
	or Say				30.43	34.43
	Per plant cost for 3rd year	V7 1			50.45	
	Fourth Financial	Year Act	HYITTES			
	(April to h		28.70	3.57	102.46	128.08
1	Preparing nursery beds to shift 9"x16" P bags at a spacing of 9" row to row	Sq Mtr	20.70	3.37		
2	Shifting and Grading of Plants at a spacing of 9" row to	No./100	186.80	1	186.80	. 233.50
	row	No./100	2.52	120	302.40	378.00
3	Hand watering of P/bags (120 days)	No./100	16.52	4		82.60
4	Weeding and hoeing of plants (4 times)	190./100	10.52		657.74	822.18
	Total Cost in 4th Financial Year	a seciedada (1946)	Pittanië le Kriscitis		658.00	822,00
	or say	The state of the s			6.58	8,22
	Per plant cost for 4th year				0.30	0,44
	Fifth Financial Y		vities			
	(April to				151.20	189.00
1	Hand watering of P/bags (60 days)	No./100	2.52	60		
2	Weeding and hoeing of plants (1 time)	No./100	16.52	1	16.52	20.65
3	Shifting and Grading of Plants	No./100	186.80	1	186.80	233.50
	Total Cost in Fifth Financial Year				354.52	443.15
	or say				355.00	443,00
	Per plant cost for 5th year				3.55	4.43
	G. TOTAL of costs for 5 years				5291,00	6202,00
	Total cost per Plant				52,91	62.02

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Principal Chief Conservator of Forests (HoFF)
Himachal Pradesh, Shimla-171001 ) 10

# COST OF RAISING NORMAL DEODAR PLANTS IN POLY BAGS IN NURSERY

# (2½ year old) Calculated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. 22.50 for

	3. อยู่ในเป็นไม่	Unit	Rate	Qty.	Amount	
Sr.	Activity	(1904) Sec. 1			For Non	For Tribal
Vo.					Tribal areas	Areas
	* 1 1	A astir	viitiae			
	First Financial Y					
	(From Sowing			1	28.70	. 35.8
	Preparation of nursery beds including layout	Sqm	28.70	1	3.92	4.9
1	Mixing of vermi compost in the gemination bed	Sqm	3.92	1	2.80	3.5
2	Application of insecticide/pesticide in the bed	Sqm	2.80	1	11.62	14.5
3	Line sowing of seed	Sqm	11.62	1	50.40	63.0
4_	Hand watering of plants in bed (20 Times)	Sqm	2.52	20	5.74	7.1
5	Mulching in nursery beds	Sqm	5.74	0.005	9.30	11.6
6	Cost of deodar seed	Kg	372.00	0.025	15.00	15.0
7	Cost of insecticide/ pesticide	LS		- 0.00	14.00	, 14.0
8	a farma compost	Kg	7.00	2.00	141.48	169.6
9	Cost of verificomposi			TO SHOULD SE		
	on say		history.		141.00	170.0
		11 11 11 11 11 11 11 11 11 11 11 11 11			1.41	1.7
rije.	Per plant cost for 1st year					
	Second Financial (April to l	Warch)				
			28.70	0.69	19.80	24.7
1	Preparing of nursery beds including layout for	Sqm	20.70	0.07		
	accomodating p bags		701.00		381.99	477.4
2	remise of P/bros of size 5"x9" including collection	No./100	381.99	1	361.7?	3,77
4	carriage sieving of soil, mixing of mannure/humus,				07.00	211
	Lining of P/bags	No./100	27.30	1	27.30	34.1 95.3
3	Pricking and setting of seedlings in P/bags	No./100	76.30	1	76.30	315.0
4	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00 66.08	82.6
5	Weeding and hoeing of plants (4 times)	No./100	16.52	4	33.60	42.0
6	Shifting and grading of Plants	No./100	33.60	1 17	119.00	119.0
7		11.0		1 /	112.00	
7		Kg	7.00			
8	Cost of vermi compost	LS	-	-	15.00	15.0
8	Cost of vermi compost Cost of insecticide/ pesticide	LS Kg	160.00	0.3	15.00 48.00	15.0
8 9 10	Cost of vermi compost Cost of insecticide/ pesticide	LS	-	-	15.00	15.0 48.0 19.5
8 9 10	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto	Kg Cu Mt	160.00	0.3	15.00 48.00 19.50	15.0 48.0 19.5
8 9 10	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto	Kg Cu Mt	160.00 500.00	0.3	15.00 48.00 19.50 1058.57	15.0 48.0 19.5 <b>1272.8</b> 5
8	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year	LS Kg Cu Mt	160.00	0.3	15.00 48.00 19.50 1058.57 1059.00	15.0 48.0 19.5 1272.8
8 9 10	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year or say	LS Kg Cu Mt	160.00 500.00	0.3	15.00 48.00 19.50 1058.57	15.0 48.0 19.5
8 9 10	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year	LS Kg Cu Mt	160.00 500.00	0.3	15.00 48.00 19.50 1058.57 1059.00	15.0 48.0 19.5 1272.85
8 9 10	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y	LS Kg Cu Mt	160.00 500.00	0.3	15.00 48.00 19.50 1058.57 1059.00	15.0 48.0 19.5 1272.8
8 9 10	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year or say  Per plant cost for 2nd year	LS Kg Cu Mt	160.00 500.00	0.3	15.00 48.00 19.50 1058.57 1059.00 10.59	15.0 48.0 19.5 1272.8: 1273.0 12.7
8 9 10 11	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year or say  Per plant cost for 2nd year  Third Financial \( \) (April to \( \)	LS Kg Cu Mt	160.00 500.00	0.3	15.00 48.00 19.50 1058.57 1059.00 10.59	15.0 48.0 19.5 1272.8: 1273.0 12.73
8 9 10 11	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to IV	LS Kg Cu Mt Year Acti	160.00 500.00 vities 2.52 16.52	0.3	15.00 48.00 19.50 1058.57 1059.00 10.59	15.0 48.0 19.5 1272.8 1273.0 12.73
8 9 10 11 11 1 2	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to IV  Weeding and hoeing of plants (4 times)	LS Kg Cu Mt  /ear Acti /larch) No./100	160.00 500.00	0.3	15.00 48.00 19.50 1058.57 1059.00 10.59 252.00 66.08 33.60	15.0 48.0 19.5 1272.8 1273.0 12.7 315.0 82.6 42.0
8 9 10 11	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to IV  Hand watering of P/bags (100 days)  Weeding and hoeing of plants (4 times)  Shifting and Grading of plants	LS Kg Cu Mt  /ear Acti /larch) No./100 No./100	160.00 500.00 vities 2.52 16.52	0.3 0.039 100 4	15.00 48.00 19.50 1058.57 1059.00 10.59 252.00 66.08 33.60 351.68	15.0 48.0 19.5 1272.8 1273.0 12.7 315.0 82.6 42.0 439.6
8 9 10 11 1 1 2	Cost of vermi compost Cost of insecticide/ pesticide Cost of polythene bags Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to IV  Weeding and hoeing of plants (4 times)	LS Kg Cu Mt  /ear Acti /larch) No./100 No./100	160.00 500.00 vities 2.52 16.52	0.3	15.00 48.00 19.50 1058.57 1059.00 10.59 252.00 66.08 33.60	15.0 48.0 19.5 1272.8: 1273.0 12.7:

		Unit	Raie	Qty.	Amount	(in Rs.)
Sr.	Activity	Onic			For Non	For Tribal
		3			Tribal areas	Areas
No.			*			
,	Fourth Financial	Year Act	IVILLES			
	(April to	June)			100.80	126.00
		No./100	2.52	40	16.52	20.65
1	Hand watering of P/bags (40 days)	No./100	16.52	1	33.60	- 00
2	Weeding and hoeing of plants (1 time)  Shifting and Grading of plants  The setts Trimpage in Vent	No./100	33.60	1	150.92	
3	Shifting and Grading of plants  Total cost in Fourth Financial year	4 A. A. C. L.	19-18-19-19-19-1		151.00	
	or say				1.51	1.89
	Per plant cost for 4th year				1703.00	2072.00
	- rotal of costs for 4 years				17.03	1
	Total cost per plant					

Probled Chief Conservator of Forests (HoFF)
Himachal Pradesh, Shimla-171001 48

# COST OF RAISING TALL DEODAR PLANTS IN POLY BAGS IN NURSERY

(3½ year old)

Calculated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. 2.50 for Tribal areas

Care	Title Co.	T.I.IDSH SH	Cas				(* Y))
	`		Umit	Rate	Qty.	Amount	The second secon
Sr.		Activity				For Non	For Tribal
No.					.	Tribal areas	Areas
NO.		* 11 \$7	Lange Archiv	rities			
		First Financial Ye	Call Pacelly	LICE			
		(Sowing to		28.70	1	28.70	35.88
	- Lion (	of nursery beds including layout	Sqm			3.92	4.90
1 1	reparation c	in the remination bed	Sqm	3.92	1	2.80	3.50
3 V	vixing of ve	of insecticide/pesticide in the bed	Sqm	2.80	1	11.62	14.53
3 A	Application	of insecticide/pesticide	Sqm	11.62		50.40	63.00
4 1	ine sowing	of seed	Sqm	2.52	20	5.74	7.18
5 1	Jand wateri	ng of plants in bed 20 Times	Sqm	5.74	. 1	14.00	14.00
			Kg	7.00	2	14.00	11.00
7 (	Cost of vern	nursery beds ni compost including carriage upto nursery					11.65
			Kg	372.00	0.025	9.30	
8 (	Cost of seed		LS	-	-	15.00	
9 (	Cost of inser	California de la companya della companya de la companya della comp	-			141.48	
-9	Coar Gran	Total cost in first rinancial year	man naga Nordon S		4	141.00	170.00
, p. 142, 113, 11		on say			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.41	1.70
		Per plant cost for 1st year					
		Second Financial	Year Aci	tivities			1,
		(April to l	Warch)				
			Sqm	28.70	0.69	19.80	. 24.75
1	Preparing of	nursery beds including layout for	Belin				- 4
1	1	5.5 5" v O" P/Bags	No./100	381.99	1	381.99	477.49
		a secise 5"v0" including contection,	140./100	301.27			
		· · · · · · · · · · · · · · · · · · ·		-			
	Carriage & c	pesticide including collection & carriage of					-
		pusitieres as a			1	27.30	34.1
	soil	9	No./100	27.30		76.30	
3	Lining of Pa	I setting of seedlings in P/bags	No./100	76.30			
4	Pricking an	I setting of sectings with a setting of secting of secting of sections with a setting of sections of s	No./100	2.52		((0)	
5	Hand water	ing of P/bags (100 days)	No./100	16.52			
6	Weeding an	d hoeing of plants (4 times)	No./100	33.60			
7	Shifting and	l grading of Plants	Kg	7.00	17		
8	Cost of veri	ni compost	LS			15.00	
9	Cost of inse	cricide/ pesticide	Kg	160.00			
10	Cost of poly	thene bags curement of sand including its carriage upto	Cu Mt	500.00	0.039	19.50	19.5
11	Cost of pro-	curement of sand including its carriage apre-				3100000	1272.8
	nursery	Total cost in 2nd Financial year	-			1058.57	
		or say		Pinter.		1059.01	The second secon
						10.59	12.7
		Per plant cost for 2nd year	art cale finan	Carried and the		1	

# COST OF RAISING NORMAL FIR/SPRUCE PLANTS IN POLY BAGS IN NURSERY (4½

	Tribal are	VJvait	Rate	Qty.	Amount (	(in Rs.)
Sr.	Activity	ANTE	Ituto		For Non Tribal areas	For Tribal Areas
	First Financial Ye	ar Activ	ities			
	(Sowing to N	vlarch)				25.0
		Sqm	28.70	1	28.70	35.88
1	In assuration of nursery beds including layour	Sqm	3.92	1	3.92	, 4.90
2	the gemmation bed	Sqm Sqm	2.80	1	2.80	3.5
3	t : Cinaming de mesticide in the bed		11.62	1	11.62	14.5
4	in a stream	Sqm Sum	2.52	20	50.40	
5	- Foliante in heil (20 Times)	Sqm	5.74	1	5.74	, 7.1
6	1	Sqm Ko	525.00	0.01	5.25	
7	Cost of seed	Kg LS	3-2	_	15.00	
8	c: - stigidal pesticide		7	2	14.00	
8	Ta Carri accordet	Kg	-		137.43	164.5
9	Total cost in first Financial year				137.00	
	or say	X-17.77			1.37	-
	Per plant cost for 1st year Second Financial				1.27	J. P.M.
	Preparing of nursery beds including layout	Sqm	28.70			-
2	Filling of P/bags of size 4"x6" including collection, carriage, sieving of soil, mixing of mannure/humus,	No./100	147.14	1	147.14	102.2
	le deside a participal de la companya del companya della companya	- 20	27.20	1	27.30	34.
	Tining of P/hags	No./100	27.30	-	-100	
3	Pricking and setting of seedlings in P/bags	No./100	76.30			
4	Hand watering of P/bags (100 days)	No./100	2.52		55.00	_
	Trr A contacina al Eduaga (100 cm) -/		2 / -		. UU.us	) ' -
5	by the and hoging of plants (4 times)	No./100	16.52			
5 6	Weeding and hoeing of plants (4 times)	Kg	7.00		65.10	65.
5 6 7	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of vermi compost	Kg LS	7.00	9.3	65.10 15.00	65.
5 6 7 8	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide	Kg LS Kg	7.00	9.3	65.10 15.00 32.00	65. 15. 32.
5 6 7	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto	Kg LS Kg Cu Mt	7.00	9.3	65.10 15.00 32.00 8.30	65. 15.0 32.0 8.
5 6 7 8 9	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto	Kg LS Kg Cu Mt	7.00	9.3	65.10 15.00 32.00 8.30 701.85	65. 15.0 32. 8. 8.
5 6 7 8 9	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year	Kg LS Kg Cu Mt	7.00	9.3	65.10 15.00 32.00 8.30	65. 15.0 32.0 8. 8. 8. 8. 8. 8. 8.
5 6 7 8 9	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say	Kg LS Kg Cu Mt	7.00	9.3	65.10 15.00 32.00 8.30 701.85	65. 15. 32. 8. 8. 8. 8. 8. 8. 8.
5 6 7 8 9	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say	Kg LS Kg Cu Mt	7.00 - 160.00 500.00	9.3	65.10 15.00 32.00 8.30 701.85	65. 15. 32. 8. 8. 8. 8. 8. 8. 8.
5 6 7 8 9	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say	Kg LS Kg Cu Mt	7.00 - 160.00 500.00	9.3 0.2 0.0166	65.10 15.00 32.00 8.30 701.85 702.00	65. 15. 32. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8
5 6 7 8 9 10	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to N	Kg LS Kg Cu Mt	7.00 - 160.00 500.00 ivities	9.3	65.10 15.00 32.00 8.30 701.85 702.00 7.02	65. 15. 32. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8
5 6 7 8 9 10	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to N	Kg LS Kg Cu Mt Year Act	7.00 - 160.00 500.00 ivities - 2.52 16.52	9.3 0.02 0.0166	65.10 15.00 32.00 8.30 701.85 702.00 7.02 0 252.00 66.08	65. 15. 32. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8
5 6 7 8 9 10	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to Meding and hoeing of P/bags (100 days)  Weeding and hoeing of plants (4 times)	Kg LS Kg Cu Mt  /ear Act vlarch)	7.00 - 160.00 500.00 ivities	9.3 0.02 0.0166	65.10 15.00 32.00 8.30 701.85 702.00 7.02 0 252.00 4 66.08 33.60	65. 15. 32. 8. 847. 847. 847. 847. 847. 9 847.
5 6 7 8 9 10	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to N  Hand watering of P/bags (100 days)  Weeding and hoeing of plants (4 times)	Kg LS Kg Cu Mt  Year Act Vlarch) No./100 No./100 No./100	7.00 - 160.00 500.00 ivities - 2.52 16.52	9.3 0.02 0.0166	65.10 15.00 32.00 8.30 701.85 702.00 7.02 0 252.00 4 66.08 33.60 351.68	65. 15. 32. 8. 8.47. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.
5 6 7 8 9 10	Weeding and hoeing of plants (4 times)  Cost of vermi compost  Cost of insecticide/ pesticide  Cost of polythene bags  Cost of procurement of sand including its carriage upto nursery  Total cost in second Financial year  or say  Per plant cost for 2nd year  Third Financial Y  (April to Meding and hoeing of P/bags (100 days)  Weeding and hoeing of plants (4 times)	Kg LS Kg Cu Mt  Year Act Wareh) No./100 No./100	7.00 - 160.00 500.00 ivities - 2.52 16.52	9.3 0.02 0.0166	65.10 15.00 32.00 8.30 701.85 702.00 7.02 0 252.00 4 66.08 33.60	65. 15. 32. 8. 8.47. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.

	Activity	Unit	Rate	Qty.	Amount	(in Rs.)
Sr.	LACTIVITY				For Non	For Tribal
Ma					Tribal areas	Areas
V 8.	Third Financial	Ven Aci	tivities			
	(April to l		,			
		Sqm	28.70	2.04	58.55	73.19
1	Preparing of nursery beds including layout for accomodating 9"x16" P/Bags	Bqm				
	accomodating 7 x10 1/20gs	No./100	1111.88	1	1111.88	1389.85
2	Filling of P/bags of size 9"x16" by collection, carriage sieving of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 5"x9" P/bags into 9"x16" size P/bag which also include the removal of a part of ball of earth and untwining of roots.					,
	of a part of ball of earth and the many				(1.01	76.51
	Lining of P/bags	No./100	61.21	1	61.21	76.51 315.00
3	Hand watering of P/bags (100 days)	No./100	2.52	100	(( 00	82.60
<u>4</u> 5	Weeding and hoeing of plants (4 times)	No./100	16.52	4		938.00
6	Cost of vermi compost	Kg	7.00	134		80.00
7	Cost of insecticide/ pesticide	LS	-	-	80.00	320.00
8	Cost of polythene bays	Kg	160.00	2		105.00
9	Cost of procurement of sand including its carriage upto	Cu Mt	500.00	0.21	105.00	105.00
9	nurserv				0.0.00 70	3380.15
	Total cost in third Financial year				2992.72	
1.21.35	or say				2993,00	3380.00
	Per plant cost for 3rd year				29.93	33.80
	Fourth Financial	Year Ac	tivities			
	(April to I					2
		Sq Mtr	28.70	3.57	102.46	128.08
1	Preparing nursery beds to increase the spacing of	St Min	20.70	3.5,		
	9"x16" P bags to 9" row to row	No./100	186.80	1	186.80	233.50
2	Shifting and Grading of Plants at a spacing of 9" row to	190./100	180.80			
	row (100 days)	No./100	2.52	100	252.00	315.00
3	117 1 of P/hane (100 03VS)	110.7100				
	Hand watering of P/bags (100 days)	No./100	16.52	4	66.08	82.60
4	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08 <b>607.3</b> 4	
	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year		16.52	4	607.34	759.18
4	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	16.52	4	607.34 607.00	759.18 759.00
	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or, say  Per plant cost for 4th year				607.34	759.18
	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y	ear Acti			607.34 607.00	759.18 759.00
	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or, say  Per plant cost for 4th year	ear Acti June)	vities	1	607.34 607.00 6.07	759.18 759.00 7.59
	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y  (April to	ear Acti June) No./100	vities	40	607.34 607.00 6.07	759.18 759.00 7.59
1	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y  (April to  Hand watering of P/bags (40 days)  Weeding and hoeing of plants (1 times)	ear Acti June) No./100 No./100	vities 2.52 16.52	1	607.34 607.00 6.07	759.18 759.00 7.59
	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y  (April to  Hand watering of P/bags (40 days)  Weeding and hoeing of plants (1 times)  Shifting and Grading of P/Bags	ear Acti June) No./100	vities	40	607.34 607.00 6.07 100.80 16.52 186.80	759.18 759.00 7.59 126.00 20.65 233.50
1 2	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y  (April to  Hand watering of P/bags (40 days)  Weeding and hoeing of plants (1 times)	ear Acti June) No./100 No./100	vities 2.52 16.52	40	607.34 607.00 6.07 100.80 16.52 186.80 304.12	759.18 759.00 7,59 126.00 20.65 233.50 380.15
1 2	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y  (April to  Hand watering of P/bags (40 days)  Weeding and hoeing of plants (1 times)  Shifting and Grading of P/Bags  Total cost in 5th Financial year  or say	ear Acti June) No./100 No./100	vities 2.52 16.52	40	607.34 607.00 6.07 100.80 16.52 186.80 304.12 304.00	759.18 759.00 7.59 126.00 20.65 233.50 380.15 380.00
1 2	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y  (April to  Hand watering of P/bags (40 days)  Weeding and hoeing of plants (1 times)  Shifting and Grading of P/Bags  Total cost in 5th Financial year  or say	ear Acti June) No./100 No./100	vities 2.52 16.52	40	100.80 16.52 186.80 304.12 304.00 3.04	126.00 20.65 233.50 380.15 380.00 3.80
1 2	Weeding and hoeing of plants (4 times)  Total cost in Fourth Financial year  or say  Per plant cost for 4th year  Fifth Financial Y  (April to  Hand watering of P/bags (40 days)  Weeding and hoeing of plants (1 times)  Shifting and Grading of P/Bags  Total cost in 5th Financial year	ear Acti June) No./100 No./100	vities 2.52 16.52	40	607.34 607.00 6.07 100.80 16.52 186.80 304.12 304.00	759.18 759.00 7.59 126.00 20.65 233.50 380.15 380.00

Principal Chief Conservator of Forests (FloFF) Himachal Praclesh, Shimla-171001

# COST OF RAISING NORMAL FIR/SPRUCE PLANTS IN POLY BAGS IN NURSERY (4½ year old)

Canculated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. 262.50 for Tribal areas

	Tribal ar	reas			•	
		Unit	Raid	Qiy.	Amount	
Sr.	Activity				For Non	For Tribal
No.			•		Tribal areas	Areas
lu C.	* H V/	م الم الم				
	First Financial Ye	ear Acur	ILICS			
	(Sowing to I		22.70		28.70	35.88
	Preparation of nursery beds including layout	Sqm	28.70	1		4.90
1	Preparation of nursery fleds including by  Mixing of vermi compost in the gemination bed	Sqm	3.92	1	3.92	
2	The standard of the standard o	Sqm	2.80	1	2.80 11.62	
3	L. Landfred L.	Sqm	11.62	20	50.40	1.2.00
-1	The state of plants in Ded (20 Times)	Sqm	2.52	20	5.74	
5	Level 1 to the consequent Decils	Sqm	5.74	0.01	5.25	, , , , , , , , , , , , , , , , , , , ,
7	Cost of seed	Kg	525.00	0.01	15.00	
7 8	a cianaticide/pesticide	LS	7	2	14.00	-
8	5	Kg	/		137.43	
9	Total cost in first Financial year		- A 12 1 1 1 1 1 1	F18-18-32" - V	137.00	
- 157	or say					
	Per plant cost for 1st year			111111111	1.37	Live
	Second Financial Y	Year Act	tivities			,
	(April to ly	vlarch)				
		Sqm	28.70	0.44	12.63	
1	Preparing of nursery bods metading myour	No./100	147.14	1	147.14	183.9
2	Truing of Phones of size 4"x6" including collection,	N0./100	177.2	[ ]		(1)
-	carriage, sieving of soil, mixing of mannure/numus,		1	1		
	insecticide/ pesticide	No./100	27.30	1	27.30	
3	Lining of P/bags	No./100	76.30		76.30	
4	Pricking and setting of seedlings in P/bags	No./100	2.52	100	252,00	
5	Hand watering of P/bags (100 days)	No./100	16.52	4	66.08	
6	Weeding and hoeing of plants (4 times)	Kg	7.00			
7	Cost of vermi compost	LS		-	15.00	
8	Cost of insecticide/ pesticide	Kg	160.00			
9	Cost of polythene bags Cost of procurement of sand including its carriage upto	Cu Mt	500.00	0.0166	8.30	8.3
10						0.48 0
	nursery  Total cost in second Financial year				701.85	
	or say		1.35 47.4		702.00	
Salay ve	- [ ] 한 경우, 이어를 보고 ''의원인 전쟁인 이외로 보고 보고 있다면 보고 있다. 그는 그를 보고 있다. 그는 그를 보고 있다. 그는 그를 보고 있다. 그를 보고 있다. 그를 보고 있다. 그				7.02	8.4
	Per plant cost for 2nd year	i de la	• :: 1:00		e may at the terms	
	Third Financial Y		IVILIES			*
į.	(April to N			1 200	7.52.0	315()
1		No./100	2.52			
1	hand uniaring of P/bags (100 days)		17 5 11	4	66.08	
1	Hand watering of P/bags (100 days) Weeding and hoeing of plants (4 times)	No./100	16.52	-	22 6()	42 (
2	Weeding and hoeing of plants (4 times)	No./100 No./100	33.60	-	33.60	-
	Weeding and hoeing of plants (4 times)  Shifting and Grading of plants	No./100	33.60	1	351.68	439.6
2	Weeding and hoeing of plants (4 times)	No./100		-		439.6 440.0

	A A-Führüru	Umit	Rate	Qty.	Amount	
Sr.	Activity				For Non	For Triba
No.					Tribal areas	Areas
` ,	Fourth Financial Y	ear Acti	ivities			
	(April to V	Larch)			2.5.0/1	44.
		Sqm	28.70	1.23	35.30	4-+.
1	Preparing of nursery beds including layout for				73.112	781.0
	accomodating 7"x15" P/Bags	No./100	624.82	1	624.82	781.0
2	Filling of P/bags of size 7"x15" by collection, carriage					
	sieving of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including					
	La de la contractión de la con				9	
	The second of th					2
	of a part of ball of earth and untwining of roots.		61.21		61.21	76
3	Lining of P/bags	No./100		3.600	252.00	315
	Hand watering of P/bags (100 days)	No./100	2.52	100		82
4	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	
5	Weeding and noting of plants (* 1889)	Kg	7.00	74	518.00	
6	Cost of vermi compost	LS	-	-	80.00	. 80
7	Cost of insecticide/ pesticide	Kg	160.00	0.5	80.00	
8	Cost of polythene bags	Cu Mt	500.00	0.125	62.50	63
9	Cost of procurement of sand including its carriage upto	Cu	100000000000000000000000000000000000000			
	nursery				1779.91	2039
	Total cost in fourth Financial year				1780.00	
	or say				17.80	
	Per plant cost for 4th year				17:00	
	Fifth Financial Y	'ear Acti	vities			1
	(April to l			1 100	252.00	31.5
1	Hand watering of P/bags (100 days)	No./100	2.52		1.1.0	
-7	Weeding and hoeing of plants (4 time)	No./100	16.52		0.0 10	-
3	Skifting and Grading of plants	No./100	33.60	1	351.68	-
	Total cost in Fifth Financial year				352.00	
	or say	10000		Parent High	3.52	-
	Per plant cost for 5th year		<u>                                     </u>		<b>J. J. J.</b>	The second secon
	Sixth Financial Y	ear Acti	ivines			
	(April to	June)				1.
	Hand watering of P/bags (40 days)	No./100	2.52			
1	Weeding and hoeing of plants (Trime)	No./100	16.52	-	16.52 33.60	-
$\frac{2}{3}$	existing and Grading of plants	No./100	33.60	1		
	Total cost in 6th Financial year			- I	150.92	Continue Sec.
	on say				151.00	7 TO 10 TO 1
jallana ga					1.51	1 120 A 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Per miant cost for oth year				The state of the s	ו פייור ווגיייייייייייייייייייייייייייייייי
	Per plant cost for 6th year G. TOTAL of costs for 6 years				3474.00 34.74	100000000000000000000000000000000000000

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Principal Chief Conservator of Forests (HoFF) O Himachal Pradesh, Shimla-171001/42

Financial Year Wise split of per Plant Nursery Cost for different Species to be raised in Poly Bags

Financial		Chil/ Other 81s	ler 81s			อลก	3			Deodar	dar			Fir/ Spruce
- Year	Mormal (1½ Year 0	Normal (1½ Year Old)	Tall (2½ Year Old)	ar Old)	Normal (2½-Year O	Normal (2½-Year Old)	Tall (3½ Year Old)	ir Old)	Normal (2½ Year O	nal ar Old)	1	Ta (3½ Yea	Tall (3½ Year Old)	Tall Normal (3½ Year Old)
	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	- Z	Non Tribal	on Tribal	
İst	7.37	8.66	7.37	8.66	8.33	9.91	8.33	9.91	1.41	1.70	1	1.41	.41 1.70	
2 <sup>nd</sup>	4.02	5.03	30.43	34.43	4.02	5.03	4.02	5.03	10.59	12.73		10.59	10.59 12.73	
3rd	2.01	2.52	6.58	8.22	4.02	5.03	30.43	34.43	3.52	4.40	11	29.93	29.93 33.80	
4 <sup>th</sup>	1	1	3.55	4.43	2.01	2.52	6.58	8.22	1.51	1.89	0	6.07	.07 7.59	
U1 S	1	1	1	1	1	1	3.55	4.43	1	1	4	3.04	3.80	
9°5	1	'	1	ı	1	1	1	1	1	ı		1	1	- 1.51
Total Cost	13.40	179 500 179	47.93	55.74	دس دن درن درن	22.49	52.91	62.02	17.03	20.72		51.04		51.04 59.62 34.74 41.21

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Pr. Chief Conservator of Forests (HoFF)

Annexure- III

# new nursery protocol Chart depicting earliest availability of plants for planting being sown this winter as per

Period	Financial	Fin			Age of Plant	lant		
	Year	Year	Chil& BLs	BLs	Deodar & Ban	& Ban	Fir & Spruce	pruce
		Š	Normal	Tall	Normal	Tall	Normal	Tall
Jan 18	2017-18	Щ	Sowing	Sowing	Sowing	Sowing	Sowing	ANA
July 18	2018-19	2	½Yr	½Yr	½Yr	½Yr	½Yr	ANA
Jan 19	2018-19	2	1 yr	1 yr	1 yr	1 yr	1 yr	AN
July 19	2019-20	ω	1½ Yr	1½ Yr	1½ Yr	1½ Yr	1½ Yr	AN
Jan 20	2019-20	ω		2 Yr	2 Yr	2 Yr	2 Yr	NA
July 20	2020-21	4		2½ Yr	2½ Yr	2½ Yr	2½ Yr	NA
Jan 21	2020-21	4				3 Yr	3 Yr	NA
July 21	2021-22	ū				3½ Yr	3½ Yr	NA
Jan 22	2021-22	G					4 Yr	NA
July 22	2022-23	6					4½ Yr	NA

### Annexure-IV

# Projections of Plantation Targets and Plants which are required to be raised in 2017-18 for next years

Year of Plantation	Physical Targets proposed (Ha)	Number of plants required for new plantation	Number of plants required for maint.	Total plants required for the year (4+5)	Number of plants which will be available for planting from the carry over stock of 2017-18	Balance No. of plants required to be raised for next years	Number of plants to be raised for planting, which will be less than the new minimum 1½ year old norm	raised as per new nursery protocol i.e. minimum 1½ year old (8-9)
1								,
2018-19								1
2019-20							Not permissible	
2020-21							Not permissible	
2021-22							Not permissible	
2022-23								

			Species wise	bifurcatio	n of pla	nts which will	be raised	this yea	r		
				(2017-18)	) for pla	Willing in next	/ears				
				(b		ion of col 8)					
						11					
				D			Deodar			Fir	
	il & BL Normal	Tall	<1½ year	Ban Normal	Tall	<1½ year	Normal	Tall	<1½ year	Normal,	Tall
<1½ year old	Norman		old			old			Old	1	NA
											NA
			N. A.			Not			Not		NA
lot ermissible			Not permissible			permissible Not			permissible Not		NA
Not permissible			Not permissible			permissible			permissible Not		NA
Not permissible			Not permissible			permissible			permissible		

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### No. Ft. 15-434/10(D)DAP/2017-18Vol-III Forest Department Himachal Pradesh

Dated

Shimla, the

From: Pr. CCF (HoFF)HP

To: PCCF (WL) & all CCFs/CF(T) in HP

Subject:

Allocation of funds for nursery raising.

Memo

As the nurseries have been delinked from plantations from this year, the budget under different plantation schemes was allotted exclusive of nursery component. The norms for raising tall and normal plants for different species were notified by the Govt. and circulated vide this office endst. No. Ft.1790-2/71(D)2011-12/Vol-VII(Norms) dated 12.05.2017. The matter has thereafter been deliberated and discussed in different meetings/workshops and based on the feedback of these deliberations, the nursery norms have again been revisited and revised norms, likely to be approved by Govt. shortly, will be communicated to you. The nursery methodology for raising planting stock of different species has also been finalized with a view to standardize nursery techniques to be followed across State and these standard Operating Procedures (SOP) for growing polybag plants in forest nurseries are also being sent separately.

- As per the above mentioned new nursery raising protocol, the minimum age for a plant to become plant-able has been fixed as 11/2 years (normal Chil & other BL plants) and goes upto 41/2 years (normal Fir plants). One of the implications of this change is that the nursery raising activity will spread over a minimum of three financial years and may go upto six years in case of Fir. As a result, the budget for raising plants of different species will also have to be bifurcated over several years. You will thus appreciate that the budget allocation for nursery raising under this new regime of cost norms could only be done when species wise and plant size wise detail of plants required to be raised in each division is made available to this office. Field offices were requested vide this office letter of even number dated 19.07.2017 to make available these details but the same has not been received so far.
- Since nursery raising operations for the current year are already underway, tentative budget allocation for nursery raising is being made to the field officers so that timely nursery operations are not hampered as per detail given below:-

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Name of Circle	Tentative allocation under Major 2406-01- 102-05-SOON -Raising of Nurseries for Departmental Planting & Public Distribution (₹ in lac)
	52.20
Bilaspur	. 134.10
Chamba	127.80
Dharamshala	100.80
Hamirpur	24.30
Kullu	56.70
Mandi	47.70
Nahan	27.00
Rampur	21.60
Shimla	21.60
Solan	18.00
Wildlife	631.80
Total	

These tentative allocations are based on the number of plants required to be planted on the basis of this year's plantation targets. However, it may be noted that this allocation is only tentative and will be revised when species wise detail of plants to be raised is made available by you to this office. The budgetary allocation for second and subsequent years will be made in subsequent financial years with the proviso that the plants being raised this year will have to become available in the respective financial years. A detailed online tracking system in this regard is being evolved so that raising and disposal of every plant in the nursery for which funding is being made, is accounted for properly.

You are requested to assess the species-wise requirement of plants (normal as well as tall) over the next 2 to 6 years (based on type of species and size of plant as applicable to your circle) under different plantation schemes and send the details to this office so that the tentative budget being allocated now is revised and finalized based on

actual figures.

While calculating your requirement of plants, following points may be kept in view:-

1. It was previously decided to completely switch over to tall plants by the year 2021-22 by which date all plants being sown this winter (except Fir) will qualify as tall plants. However, during discussions at different levels, it has emerged that due to various technical considerations, it may not be feasible to completely switch over to this in near future. Hence it has been decided that by 2021-22, it shall be attempted to plant atleast 40 % tall plants, Further decision in this regard will be taken after analysis of the results of tall planting.

2. Tall and normal plants will not be mixed in a single plantation but each plantation

will either exclusively tall or normal.

3. Since lowest age slab for normal plant-able plant in the nursery is 11/2 years, it will mean that any sowing done this winter will not become available for planting during 2018-19 planting season even if these plants are to be planted as normal plants. In case of Deodar and Ban species, the sowing being done now will not become available even for 2019-20 planting season. Only carry over stock of this year of some species will meet the norm of minimum 11/2 years age to qualify for planting in 2018-19 planting season and minimum 21/2 years age restriction for planting in 2019-20 planting season. An analysis of nursery returns submitted by various divisions has revealed that sufficient stock of this age will not be available for planting during next two years if minimum age restriction is strictly adhered, thus impacting plantation programme of these two years. It has, therefore, been decided that for these two years, which are transition years for shifting to new nursery methodology, some flexibility has to be afforded with regard to minimum age of planting stock as fixed in the new nursery protocol and hence during the year 2018-19 and 2019-20, some planting will be allowed as per the planting regime in practice at present only to the extent to overcome the non-availability of tall plants.

The desired information may be furnished to this office by 15.02.2018 positively.

Pr. Chief Conservator of Forests (HoFF),

Himachal Pradesh

Endst. No. As above

MM JAN 2018

Copy forwarded to Registrar (Budget) O/o Pr. CCF HP Shimla. information and necessary action.

Pr. Chief Conservator of Forests (Hoff),