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.

3. As per the new nursery protocol, the plants being sown this winter 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

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 allotted 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.

6. 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

Endst No. _____ Dated 21 FEB 2018

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.

24.1.2018

Encl: As above

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

Accd

24/2/18

Office of The Chief Project Director H.P. Forests For Prosperity Project Unit
Receipt No. 316
Dated 27/02/18

Annexure-I

Himachal Pradesh Forest Department

Standard Operating Procedure (SOP) for Growing Tall Polybag Plants in Forest Nurseries

1. Introduction

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 –

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

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 'Brey' (*Quercusbaloot*)are very slow growing andare 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:

i. 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 above.
- 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.

ii. 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 2-leaved 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. <u>Species for the Temperate Zone</u>:-

S.No.	Species	Age (in years)	Min. Height (inmtrs.)	Min. Collar Diameter (in cm.)	Season/ Month of Sowing
1	Deodar (*Cedrusdeodara*)	3.5	0.90	1.1	Winters
2	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 (*Pinusroxburghii*)	2.5	1.0	1.2	
2	Harar (*Terminaliachebula*)	2.5	1.0	1.2	
3	Amla (*Phyllanthusemblica*) Anar/ Daru (*Punicagranatum*) Beul (*Grewiaoptiva*) Khair (*Acacia catechu*) Shisham (*Dalbergiasissoo*) Misc. broad-leaved species	2.5	1.2	1.5	
4	Bahera (*Terminaliabellirica*) Jamun (*Syzygiumcumini*) Arjun (*Terminaliaarjuna*) Ritha (*Sapindusmukrrosi*) Kachnar/ Karial (*Bauhinia variegata*) Aam/ Amb (*Mangiferaindica*) Shahtoot/ Chimu (*Morus alba/ M. serrata*)	2.5	1.5	1.8	

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 valuein 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 poundedto 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 weed germplasm.
- 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 sieved before use.
  - 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 mixtureis 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) Pricking out Seedlings in Polybags: 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 $10m^2$ 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 $40m^2$. 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 $80m^2$. Thus, raising 1000 tall plants of 'Deodar' in the nursery would require a nursery bed space of $80m^2$ 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 m^2 ($10m^2$ for first year plants + $40m^2$ for two year plants + $80m^2$ 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 issueis 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) Using Root Trainer Plugs: 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 light.
- 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 of species	Size	Financial Year-wise split of cost (Rs.)						Total per plant cost Norm
			Year I	Year II	Year III	Year IV	Year V	Year VI	
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
6	Deodar	Tall	1.41	10.59	29.93	6.07	3.04	0	51.04
7	Fir	Normal	1.37	7.02	3.52	17.80	3.52	1.51	34.74
8	Fir	Tall	NA	NA	NA	NA	NA	NA	NA

FOR TRIBAL AREAS

S.No.	Name of species	Size	Financial Year-wise split of cost (Rs.)						Total per plant cost Norm
			Year I	Year II	Year III	Year IV	Year V	Year VI	
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.

Annexure-II

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

Financial Year	Chil/ Other BLs				Ban				Deodar				Fir/ Spruce	
	Normal (1½ Year Old)		Tall (2½ Year Old)		Normal (2½ Year Old)		Tall (3½ Year Old)		Normal (2½ Year Old)		Tall (3½ Year Old)		Normal (4½ Year Old)	
	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal
Ist	7.37	8.66	7.37	8.66	8.33	9.91	8.33	9.91	1.41	1.70	1.41	1.70	1.37	1.65
2nd	4.02	5.03	30.43	34.43	4.02	5.03	4.02	5.03	10.59	12.73	10.59	12.73	7.02	8.47
3rd	2.01	2.52	6.58	8.22	4.02	5.03	30.43	34.43	3.52	4.40	29.93	33.80	3.52	4.40
4th	-	-	3.55	4.43	2.01	2.52	6.58	8.22	1.51	1.89	6.07	7.59	17.80	20.40
5th	-	-	-	-	-	-	3.55	4.43	-	-	3.04	3.80	3.52	4.40
6th	-	-	-	-	-	-	-	-	-	-	-	-	1.51	1.89
Total Cost	13.40	16.21	47.93	55.74	18.38	22.49	52.91	62.02	17.03	20.72	51.04	59.62	34.74	41.21

Pr. Chief Conservator of Forests (HoFF)
Himachal Pradesh, Shimla

Annexure III (a) 4.

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 Tribal areas

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	First Financial Year Activities (From Seed sowing to March)					
1	Preparing of nursery beds including layout	Sqm	28.70	0.69	19.80	24.75
2	Filling of P/bags of size 5"x9" including collection, carriage, sieving of soil, mixing of mannure/humus, insecticide/ pesticide	No./100	381.99	1	381.99	477.49
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Sowing of seed in polythene bags	%	23.80	1	23.80	29.75
5	Mulching of polythene bags	%	7.42	1	7.42	9.28
6	Resowing of seed (20%)	%	23.80	0.2	4.76	5.95
7	Hand watering of P/bags (20 days)	No./100	2.52	20	50.40	63.00
8	Cost of vermi compost	Kg	7.00	17	119.00	119.00
9	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
10	Cost of polythene bags	Kg	160.00	0.3	48.00	48.00
11	Cost of seed	LS	20.00	LS	20.00	20.00
12	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.039	19.50	19.50
	Total Cost in First Financial Year				**736.97**	**865.85**
	Or say				**737.00**	**866.00**
	Per plant cost for 1st year				**7.37**	**8.66**
	Second Financial Year Activities (April to March)					
1	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
3	Shifting and grading of plants	No./100	33.60	1	33.60	42.00
	Total Cost in Second Financial Year				**402.08**	**502.60**
	Or say				**402.00**	**503.00**
	Per plant cost for 2nd year				**4.02**	**5.03**
	Third Financial Year Activities (April to March)					
1	Hand watering of P/bags (60 days)	No./100	2.52	60	151.20	189.00
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	33.60	1	33.60	42.00
	Total Cost in Third Financial Year				**201.32**	**251.65**
	Or say				**201.00**	**252.00**
	Per plant cost for 3rd year				**2.01**	**2.52**
	G. TOTAL of costs for 3 years				**1340.00**	**1621.00**
	Total cost per Plant				**13.40**	**16.21**

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

COST OF RAISING TALL CHIL & BROAD LEAVED 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. 252.50 for Tribal areas

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.) For Non Tribal areas	Amount (in Rs.) For Tribal Areas
	First Financial Year Activities (Seed sowing to March)					
1	Preparing of nursery beds including layout	Sqm	28.70	0.69	19.80	24.75
2	Filling of P/bags of size 5"x9" including collection, carriage and sieving of soil, mixing of mannure/humus, insecticide/ pesticide	No./100	381.99	1	381.99	477.49
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Sowing of seed in polythene bags	%	23.80	1	23.80	29.75
5	Mulching of polythene bags	%	7.42	1	7.42	9.28
6	Resowing of seed (20%)	%	23.80	0.2	4.76	5.95
7	Hand watering of P/bags (20 days)	No./100	2.52	20	50.40	63.00
8	Cost of vermi compost	Kg	7.00	17	119.00	119.00
9	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
10	Cost of polythene bags	Kg	160.00	0.3	48.00	48.00
11	Cost of seed	LS	20.00	LS	20.00	20.00
12	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.039	19.50	19.50
	Total Cost in First Financial Year				**736.97**	**865.85**
	or say				**737.00**	**866.00**
	Per plant cost for 1st year				**7.37**	**8.66**
	Second Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout for accomodating 9"x16" P/Bags	Sqm	28.70	2.04	58.55	73.19
2	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.	No./100	1111.88	1	1111.88	1389.85
3	Lining of P/bags	No./100	61.21	1	61.21	76.51
4	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
5	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
6	Cost of vermi compost	Kg	7.00	134	938.00	938.00
7	Cost of insecticide/ pesticide	LS	-	-	80.00	80.00
8	Cost of polythene bags	Kg	160.00	2	320.00	320.00
9	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.21	105.00	105.00
	Total Cost in Second Financial Year				**3043.12**	**3443.15**
	or Say				**3043.00**	**3443.00**
	Per plant cost for 2nd year				**30.43**	**34.43**

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	Third Financial Year Activities (April to March)					
1	Preparing nursery beds to shift 9"x16" P bags at a spacing of 9" row to row	Sq Mtr	28.70	3.57	102.46	128.08
2	Shifting and Grading of Plants at a spacing of 9" row to row	No./100	186.80	1	186.80	233.50
3	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
4	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
	Total Cost in 3rd Financial Year				**657.74**	**822.18**
	or say				**658.00**	**822.00**
	Per plant cost for 3rd year				**6.58**	**8.22**
	Fourth Financial Year Activities (April to June)					
1	Hand watering of P/bags (60 days)	No./100	2.52	60	151.20	189.00
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 fourth Financial Year				**354.52**	**443.15**
	or say				**355.00**	**443.00**
	Per plant cost for 4th year				**3.55**	**4.43**
	G. TOTAL of costs for 4 years				**4793.00**	**5574.00**
	Total cost per Plant				**47.93**	**55.74**

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. 262.50 for Tribal areas

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	First Financial Year Activities (From Seed sowing to March)					
1	Preparing of nursery beds including layout	Sqm	28.70	0.69	19.80	24.75
2	Filling of P/bags of size 5"x9" including collection, carriage, sieving of soil, mixing of mannure/humus, insecticide/ pesticide	No./100	381.99	1	381.99	477.49
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Sowing of seed in polythene bags	%	23.80	1	23.80	29.75
5	Mulching of polythene bags	%	7.42	1	7.42	9.28
6	Resowing of seed (20%)	%	23.80	0.2	4.76	5.95
7	Hand watering of P/bags (20 days)	No./100	2.52	20	50.40	63.00
8	Cost of vermi compost	Kg	7.00	17	119.00	119.00
9	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
10	Cost of polythene bags	Kg	160.00	0.3	48.00	48.00
11	Cost of seed	Kg	152.60	0.76	115.98	144.98
12	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.039	19.50	19.50
	Total Cost in First Financial Year				**832.95**	**990.83**
	Or say				**833.00**	**991.00**
	Per plant cost for 1st year				**8.33**	**9.91**
	Second Financial Year Activities (April to March)					
1	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
3	Shifting and grading of plants	No./100	33.60	1	33.60	42.00
	Total Cost in Second Financial Year				**402.08**	**502.60**
	Or say				**402.00**	**503.00**
	Per plant cost for 2nd year				**4.02**	**5.03**
	Third Financial Year Activities (April to March)					
1	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
3	Shifting and grading of plants	No./100	33.60	1	33.60	42.00
	Total Cost in Third Financial Year				**402.08**	**502.60**
	Or say				**402.00**	**503.00**
	Per plant cost for 3rd year				**4.02**	**5.03**

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	Fourth Financial Year Activities (April to June)					
1	Hand watering of P/bags (60 days)	No./100	2.52	60	151.20	189.00
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	33.60	1	33.60	42.00
	Total Cost in Fourth Financial Year				201.32	251.65
	Or say				201.00	252.00
	Per plant cost for 4th year				2.01	2.52
	G. TOTAL of costs for 4 years				1838.00	2249.00
	Total cost per Plant				18.38	22.49

Principal Chief Conservator of Forests (HoFF)
Himachal 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. 262.50 for Tribal areas

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	First Financial Year Activities (Seed sowing to March)					
1	Preparing of nursery beds including layout	Sqm	28.70	0.69	19.80	24.75
2	Filling of P/bags of size 5"x9" including collection, carriage, sieving of soil, mixing of mannure/humus,	No./100	381.99	1	381.99	477.49
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Sowing of seed in polythene bags	%	23.80	1	23.80	29.75
5	Mulching of polythene bags	%	7.42	1	7.42	9.28
6	Resowing of seed (20%)	%	23.80	0.2	4.76	5.95
7	Hand watering of P/bags (20 days)	No./100	2.52	20	50.40	63.00
8	Cost of vermi compost	Kg	7.00	17	119.00	119.00
9	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
10	Cost of polythene bags	Kg	160.00	0.3	48.00	48.00
11	Cost of seed	Kg	152.60	0.76	115.98	144.98
12	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.039	19.50	19.50
	Total Cost in First Financial Year				**832.95**	**990.83**
	or say				**833.00**	**991.00**
	Per plant cost for 1st year				**8.33**	**9.91**
	Second Financial Year Activities (April to March)					
1	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
3	Shifting and grading of plants	No./100	33.60	1	33.60	42.00
	Total Cost in Second Financial Year				**402.08**	**502.60**
	Or say				**402.00**	**503.00**
	Per plant cost for 2nd year				**4.02**	**5.03**
	Third Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout for accomodating 9"x16" P/Bags	Sqm	28.70	2.04	58.55	73.19
2	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.	No./100	1111.88	1	1111.88	1389.85
3	Lining of P/bags	No./100	61.21	1	61.21	76.51
4	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
5	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
7	Cost of vermi compost	Kg	7.00	134	938.00	938.00

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
8	Cost of insecticide/ pesticide	LS	-	-	80.00	80.00
9	Cost of polythene bags	Kg	160.00	2	320.00	320.00
10	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.21	105.00	105.00
	Total Cost in Third Financial Year				**3043.12**	**3443.15**
	or Say				**3043.00**	**3443.00**
	Per plant cost for 3rd year				**30.43**	**34.43**
	Fourth Financial Year Activities (April to March)					
1	Preparing nursery beds to shift 9"x16" P bags at a spacing of 9" row to row	Sq Mtr	28.70	3.57	102.46	128.08
2	Shifting and Grading of Plants at a spacing of 9" row to row	No./100	186.80	1	186.80	233.50
3	Hand watering of P/bags (120 days)	No./100	2.52	120	302.40	378.00
4	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
	Total Cost in 4th Financial Year				**657.74**	**822.18**
	or say				**658.00**	**822.00**
	Per plant cost for 4th year				**6.58**	**8.22**
	Fifth Financial Year Activities (April to June)					
1	Hand watering of P/bags (60 days)	No./100	2.52	60	151.20	189.00
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**

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

15/2/18

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. 262.50 for Tribal areas

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	First Financial Year Activities (From Sowing to March)					
1	Preparation of nursery beds including layout	Sqm	28.70	1	28.70	35.88
2	Mixing of vermi compost in the gemination bed	Sqm	3.92	1	3.92	4.90
3	Application of insecticide/pesticide in the bed	Sqm	2.80	1	2.80	3.50
4	Line sowing of seed	Sqm	11.62	1	11.62	14.53
5	Hand watering of plants in bed (20 Times)	Sqm	2.52	20	50.40	63.00
6	Mulching in nursery beds	Sqm	5.74	1	5.74	7.18
7	Cost of deodar seed	Kg	372.00	0.025	9.30	11.63
8	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
9	Cost of vermi compost	Kg	7.00	2.00	14.00	14.00
	Total cost in first Financial year				**141.48**	**169.62**
	or say				**141.00**	**170.00**
	Per plant cost for 1st year				**1.41**	**1.70**
	Second Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout for accomodating p bags	Sqm	28.70	0.69	19.80	24.75
2	Filling of P/bags of size 5"x9" including collection carriage sieving of soil, mixing of mannure/humus,	No./100	381.99	1	381.99	477.49
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Pricking and setting of seedlings in P/bags	No./100	76.30	1	76.30	95.38
5	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
6	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
7	Shifting and grading of Plants	No./100	33.60	1	33.60	42.00
8	Cost of vermi compost	Kg	7.00	17	119.00	119.00
9	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
10	Cost of polythene bags	Kg	160.00	0.3	48.00	48.00
11	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.039	19.50	19.50
	Total cost in second Financial year				**1058.57**	**1272.85**
	or say				**1059.00**	**1273.00**
	Per plant cost for 2nd year				**10.59**	**12.73**
	Third Financial Year Activities (April to March)					
1	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
3	Shifting and Grading of plants	No./100	33.60	1	33.60	42.00
	Total cost in third Financial year				**351.68**	**439.60**
	or say				**352.00**	**440.00**
	Per plant cost for 3rd year				**3.52**	**4.40**

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	Fourth Financial Year Activities (April to June)					
1	Hand watering of P/bags (40 days)	No./100	2.52	40	100.80	126.00
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	33.60	1	33.60	42.00
	Total cost in Fourth Financial year				**150.92**	**188.65**
	or say				**151.00**	**189.00**
	Per plant cost for 4th year				**1.51**	**1.89**
	G. TOTAL of costs for 4 years				**1703.00**	**2072.00**
	Total cost per plant				**17.03**	**20.72**

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

15/2/18

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. [illegible].50 for Tribal areas

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	First Financial Year Activities (Sowing to March)					
1	Preparation of nursery beds including layout	Sqm	28.70	1	28.70	35.88
2	Mixing of vermi compost in the gemination bed	Sqm	3.92	1	3.92	4.90
3	Application of insecticide/pesticide in the bed	Sqm	2.80	1	2.80	3.50
4	Line sowing of seed	Sqm	11.62	1	11.62	14.53
5	Hand watering of plants in bed 20 Times	Sqm	2.52	20	50.40	63.00
6	Mulching in nursery beds	Sqm	5.74	1	5.74	7.18
7	Cost of vermi compost including carriage upto nursery	Kg	7.00	2	14.00	14.00
8	Cost of seed	Kg	372.00	0.025	9.30	11.63
9	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
	Total cost in first Financial year				**141.48**	**169.62**
	or say				**141.00**	**170.00**
	Per plant cost for 1st year				**1.41**	**1.70**
	Second Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout for accomodating 5"x9" P/Bags	Sqm	28.70	0.69	19.80	24.75
2	Filling of P/bags of size 5"x9" including collection, carriage & sieving of soil, mixing of mannure/humus, insecticide/ pesticide including collection & carriage of soil	No./100	381.99	1	381.99	477.49
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Pricking and setting of seedlings in P/bags	No./100	76.30	1	76.30	95.38
5	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
6	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
7	Shifting and grading of Plants	No./100	33.60	1	33.60	42.00
8	Cost of vermi compost	Kg	7.00	17	119.00	119.00
9	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
10	Cost of polythene bags	Kg	160.00	0.3	48.00	48.00
11	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.039	19.50	19.50
	Total cost in 2nd Financial year				**1058.57**	**1272.85**
	or say				**1059.00**	**1273.00**
	Per plant cost for 2nd year				**10.59**	**12.73**

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

Calculated for 100 plants on the wage rate of Rs. 210 for Non Tribal areas and Rs. [illegible].50 for Tribal areas

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	First Financial Year Activities (Sowing to March)					
1	Preparation of nursery beds including layout	Sqm	28.70	1	28.70	35.88
2	Mixing of vermi compost in the gemination bed	Sqm	3.92	1	3.92	4.90
3	Application of insecticide/pesticide in the bed	Sqm	2.80	1	2.80	3.50
4	Line sowing of seed	Sqm	11.62	1	11.62	14.53
5	Hand watering of plants in bed (20 Times)	Sqm	2.52	20	50.40	63.00
6	Mulching in nursery beds	Sqm	5.74	1	5.74	7.18
7	Cost of seed	Kg	525.00	0.01	5.25	6.56
8	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
9	Cost of vermi compost	Kg	7	2	14.00	14.00
	Total cost in first Financial year				**137.43**	**164.55**
	or say				**137.00**	**165.00**
	Per plant cost for 1st year				**1.37**	**1.65**
	Second Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout	Sqm	28.70	0.44	12.63	15.79
2	Filling of P/bags of size 4"x6" including collection, carriage, sieving of soil, mixing of mannure/humus, insecticide/ pesticide	No./100	147.14	1	147.14	183.93
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Pricking and setting of seedlings in P/bags	No./100	76.30	1	76.30	95.38
5	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
6	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
7	Cost of vermi compost	Kg	7.00	9.3	65.10	65.10
8	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
9	Cost of polythene bags	Kg	160.00	0.2	32.00	32.00
10	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.0166	8.30	8.30
	Total cost in second Financial year				**701.85**	**847.23**
	or say				**702.00**	**847.00**
	Per plant cost for 2nd year				**7.02**	**8.47**
	Third Financial Year Activities (April to March)					
1	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
3	Shifting and Grading of plants	No./100	33.60	1	33.60	42.00
	Total cost in third Financial year				**351.68**	**439.60**
	or say				**352.00**	**440.00**
	Per plant cost for 3rd year				**3.52**	**4.40**

Sr. No	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	Third Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout for accomodating 9"x16" P/Bags	Sqm	28.70	2.04	58.55	73.19
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.	No./100	1111.88	1	1111.88	1389.85
3	Lining of P/bags	No./100	61.21	1	61.21	76.51
4	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
5	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
6	Cost of vermi compost	Kg	7.00	134	938.00	938.00
7	Cost of insecticide/ pesticide	LS	-	-	80.00	80.00
8	Cost of polythene bags	Kg	160.00	2	320.00	320.00
9	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.21	105.00	105.00
	Total cost in third Financial year				**2992.72**	**3380.15**
	or say				**2993.00**	**3380.00**
	Per plant cost for 3rd year				**29.93**	**33.80**
	Fourth Financial Year Activities (April to March)					
1	Preparing nursery beds to increase the spacing of 9"x16" P bags to 9" row to row	Sq Mtr	28.70	3.57	102.46	128.08
2	Shifting and Grading of Plants at a spacing of 9" row to row	No./100	186.80	1	186.80	233.50
3	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
4	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
	Total cost in Fourth Financial year				**607.34**	**759.18**
	or say				**607.00**	**759.00**
	Per plant cost for 4th year				**6.07**	**7.59**
	Fifth Financial Year Activities (April to June)					
1	Hand watering of P/bags (40 days)	No./100	2.52	40	100.80	126.00
2	Weeding and hoeing of plants (1 times)	No./100	16.52	1	16.52	20.65
3	Shifting and Grading of P/Bags	No./100	186.80	1	186.80	233.50
	Total cost in 5th Financial year				**304.12**	**380.15**
	or say				**304.00**	**380.00**
	Per plant cost for 5th year				**3.04**	**3.80**
	G. TOTAL of costs for 5 years				**5104.00**	**5962.00**
	Total cost per plant				**51.04**	**59.62**

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

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

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

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	First Financial Year Activities (Sowing to March)					
1	Preparation of nursery beds including layout	Sqm	28.70	1	28.70	35.88
2	Mixing of vermi compost in the gemination bed	Sqm	3.92	1	3.92	4.90
3	Application of insecticide/pesticide in the bed	Sqm	2.80	1	2.80	3.50
4	Line sowing of seed	Sqm	11.62	1	11.62	14.53
5	Hand watering of plants in bed (20 Times)	Sqm	2.52	20	50.40	63.00
6	Mulching in nursery beds	Sqm	5.74	1	5.74	7.18
7	Cost of seed	Kg	525.00	0.01	5.25	6.56
8	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
9	Cost of vermi compost	Kg	7	2	14.00	14.00
	Total cost in first Financial year				**137.43**	**164.55**
	or say				**137.00**	**165.00**
	Per plant cost for 1st year				**1.37**	**1.65**
	Second Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout	Sqm	28.70	0.44	12.63	15.79
2	Filling of P/bags of size 4"x6" including collection, carriage, sieving of soil, mixing of mannure/humus, insecticide/ pesticide	No./100	147.14	1	147.14	183.93
3	Lining of P/bags	No./100	27.30	1	27.30	34.13
4	Pricking and setting of seedlings in P/bags	No./100	76.30	1	76.30	95.38
5	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
6	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
7	Cost of vermi compost	Kg	7.00	9.3	65.10	65.10
8	Cost of insecticide/ pesticide	LS	-	-	15.00	15.00
9	Cost of polythene bags	Kg	160.00	0.2	32.00	32.00
10	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.0166	8.30	8.30
	Total cost in second Financial year				**701.85**	**847.23**
	or say				**702.00**	**847.00**
	Per plant cost for 2nd year				**7.02**	**8.47**
	Third Financial Year Activities (April to March)					
1	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
2	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
3	Shifting and Grading of plants	No./100	33.60	1	33.60	42.00
	Total cost in third Financial year				**351.68**	**439.60**
	or say				**352.00**	**440.00**
	Per plant cost for 3rd year				**3.52**	**4.40**

Sr. No.	Activity	Unit	Rate	Qty.	Amount (in Rs.)	
					For Non Tribal areas	For Tribal Areas
	Fourth Financial Year Activities (April to March)					
1	Preparing of nursery beds including layout for accomodating 7"x15" P/Bags	Sqm	28.70	1.23	35.30	44.13
2	Filling of P/bags of size 7"x15" by collection, carriage sieving of soil, mixing of Sand/manure/ humus/vermicompost/ insecticide/ pesticide including transplanting of plants already grown in 4"x6" P/bags into 7"x15" size P/bag which also include the removal of a part of ball of earth and untwining of roots.	No./100	624.82	1	624.82	781.025
3	Lining of P/bags	No./100	61.21	1	61.21	76.51
4	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
5	Weeding and hoeing of plants (4 times)	No./100	16.52	4	66.08	82.60
6	Cost of vermi compost	Kg	7.00	74	518.00	518.00
7	Cost of insecticide/ pesticide	LS	-	-	80.00	80.00
8	Cost of polythene bags	Kg	160.00	0.5	80.00	80.00
9	Cost of procurement of sand including its carriage upto nursery	Cu Mt	500.00	0.125	62.50	62.50
	Total cost in fourth Financial year				**1779.91**	**2039.77**
	or say				**1780.60**	**2040.00**
	Per plant cost for 4th year				**17.80**	**20.40**
	Fifth Financial Year Activities (April to March)					
1	Hand watering of P/bags (100 days)	No./100	2.52	100	252.00	315.00
2	Weeding and hoeing of plants (4 time)	No./100	16.52	4	66.08	82.60
3	Shifting and Grading of plants	No./100	33.60	1	33.60	42.00
	Total cost in Fifth Financial year				**351.68**	**439.60**
	or say				**352.00**	**440.00**
	Per plant cost for 5th year				**3.52**	**4.40**
	Sixth Financial Year Activities (April to June)					
1	Hand watering of P/bags (40 days)	No./100	2.52	40	100.80	126.00
2	Weeding and hoeing of plants (1Time)	No./100	16.52	1	16.52	20.65
3	Shifting and Grading of plants	No./100	33.60	1	33.60	42.00
	Total cost in 6th Financial year				**150.92**	**188.65**
	or say				**151.00**	**189.00**
	Per plant cost for 6th year				**1.51**	**1.89**
	G. TOTAL of costs for 6 years				**3474.00**	**4121.00**
	Total cost per plant				**34.74**	**41.21**

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

15/7/13

Annexure-II(a)

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

Financial Year	Chil/ Other BLs				Ban				Deodar				Fir/ Spruce	
	Normal (1½ Year Old)		Tall (2½ Year Old)		Normal (2½ Year Old)		Tall (3½ Year Old)		Normal (2½ Year Old)		Tall (3½ Year Old)		Normal (4½ Year Old)	
	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal
Ist	7.37	8.66	7.37	8.66	8.33	9.91	8.33	9.91	1.41	1.70	1.41	1.70	1.37	1.65
2nd	4.02	5.03	30.43	34.43	4.02	5.03	4.02	5.03	10.59	12.73	10.59	12.73	7.02	8.47
3rd	2.01	2.52	6.58	8.22	4.02	5.03	30.43	34.43	3.52	4.40	29.93	33.80	3.52	4.40
4th	-	-	3.55	4.43	2.01	2.52	6.58	8.22	1.51	1.89	6.07	7.59	17.80	20.40
5th	-	-	-	-	-	-	3.55	4.43	-	-	3.04	3.80	3.52	4.40
6th	-	-	-	-	-	-	-	-	-	-	-	-	1.51	1.89
Total Cost	13.40	16.21	47.93	55.74	18.38	22.49	52.91	62.02	17.03	20.72	51.04	59.62	34.74	41.21

Pr. Chief Conservator of Forests (HoFF)
Himachal Pradesh, Shimla
15/7/15

Annexure- III

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

Period	Financial Year	Fin Year No.	Age of Plant					
			Chil& BLs		Deodar & Ban		Fir & Spruce	
			Normal	Tall	Normal	Tall	Normal	Tall
Jan 18	2017-18	1	Sowing	Sowing	Sowing	Sowing	Sowing	NA
July 18	2018-19	2	½ Yr	½ Yr	½ Yr	½ Yr	½ Yr	NA
Jan 19	2018-19	2	1 yr	1 yr	1 yr	1 yr	1 yr	NA
July 19	2019-20	3	1½ Yr	1½ Yr	1½ Yr	1½ Yr	1½ Yr	NA
Jan 20	2019-20	3		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	5				3½ Yr	3½ Yr	NA
Jan 22	2021-22	5					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	Plants to be raised as per new nursery protocol i.e. minimum 1½ year old (8-9)
1	3	4	5	6	7	8	9	10
2018-19								
2019-20								
2020-21							Not permissible	
2021-22							Not permissible	
2022-23							Not permissible	

Species wise bifurcation of plants which will be raised this year (2017-18) for planting in next years (bifurcation of col 8)											
11											
Chil & BL			Ban			Deodar			Fir		
<1½ year old	Normal	Tall	<1½ year old	Normal	Tall	<1½ year old	Normal	Tall	<1½ year old	Normal	Tall
											NA
											NA
Not permissible			Not permissible			Not permissible			Not permissible		NA
Not permissible			Not permissible			Not permissible			Not permissible		NA
Not permissible			Not permissible			Not permissible			Not permissible		NA

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.

2. As per the above mentioned new nursery raising protocol, the minimum age for a plant to become plant-able has been fixed as 1½ years (normal Chil & other BL plants) and goes upto 4½ 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.

3. 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:-

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

4. 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.

5. 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.

6. 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 1½ 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 1½ years age to qualify for planting in 2018-19 planting season and minimum 2½ 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.

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

24/01/2018

Pr. Chief Conservator of Forests(HoFF),
Himachal Pradesh

Endst. No. As above Dated 24 JAN 2018

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

24/01/2018

Pr. Chief Conservator of Forests(HoFF),