

**GOVERNMENT OF ANDHRA PRADESH
FOREST DEPARTMENT**

Rc.No. 17/2014/Res
Dt. 20-01-2016

Office of the Principal Chief Conservator of Forests
(Head of Forest Force)
Andhra Pradesh
"AranyaBhavan"
A.P., Hyderabad – 500 004

**Sri S.B.L. Misra, IFS.,
Prl. Chief Conservator of Forests
(Head of Forest Force) FAC**

CIRCULAR NO. 01/2016/Res

Sub: APFD – Dibbling of seed and Aerial Seeding -2016-17 – Collection of seed of various forest species by all divisions – Targets – Instructions issued – Regarding.

Ref: 1. PCCF, A.P., Hyderabad, Rc.No.17708/2015/Sch.IIIAP, dt.28.09.2015.
2. PCCF, A.P., Hyderabad, Rc.No.17/2014/R&D-II, dt.13.11.2015& 22.12.2015.
3. State Silviculturist, Tirupati, Rc.No.121/2015/TA, dt.04.11.2015 & 23.12.2015.

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1. The officers in the address entry are informed that, the Hon'ble Chief Minister of Andhra Pradesh desires that Dibbling and Aerial seeding in Forests has to be taken up on large scale during the year 2016-17 on priority basis. He has appreciated the Department's efforts in taking up aerial seeding and dibbling in the year 2015-16 in Vizag, Vijayawada and Guntur CRD areas and also in areas which receive North East monsoon rains in Chittoor District. This program is unique in the country especially in its scope and coverage of area. The program of seed dibbling in forest areas on large scale taken up by the Department in 2015-16 is first such an attempt in the country and the efforts of the officers in this regard are appreciated.

2. For the program of seed dibbling and aerial seeding to be successful, it is necessary to select the right species which are native to the area of treatment. Seed should be of highest quality and should be mature and viable. Seed should be collected locally to enhance the chances of better germination and survival of germinants. Seed should be pest free and hence the seed collected should be preserved till monsoon seasons taking care that the seed is not damaged by pests, insects or from fungal attacks. The success of the program also depends on skills of the persons engaged in dibbling and use of proper methods etc., For the purpose of selecting the species, the soil suitability, adequacy of soil depth and rainfall should be kept in mind. Where possible the species selected should be economically or otherwise useful to the VSS members. Seeds of exotic species and those which are aggressive, capable of replacing native populations and become weeds shall not be considered. Details of the seed biology of some native species is enclosed in Annexure I for guidance.

3. It is estimated that a total quantity of 3500 Tons of seed is required for Dibbling in the entire State and another 3500 Tons are required for Aerial seeding. These quantities have to be collected by the Divisional Forest Officers utilizing VSS members and using the wages component under MGNREGS, treating the seed collection and related activities as wage earning activities.

A. Seed dibbling:

4. As was done during the year 2015-16, the entire activity of Seed dibbling including collection of seed, treatment of seed where required and dibbling of seed shall be taken up as a wage earning activity of the VSS during the year 2016-17 also. The VSS also will collect seed for Aerial seeding as a wage earning activity. Seed collection and dibbling shall be done by each VSS utilizing the VSS members as wage earners.

5. For the purpose of seed dibbling, VSS shall be taken as a Unit. It is decided that every VSS shall take up Seed dibbling in at least in 50 Ha area with 10 KG of seed of locally useful and native species. In case where adequate area is not available for seed dibbling in a particular VSS, seed dibbling shall be taken up outside VSS also to meet the target of 50 Ha per VSS. Where more than 50 Ha area is available, seed dibbling may be taken up in more than 50 Ha also and in such cases collection of adequate quantities of seed must be done well in time.

6. Seed required for Dibbling and Aerial seeding shall be done by the VSS utilizing the members of VSS and this activity shall be treated as a wage earning activity. No other method of procurement of seed such as purchase, tenders etc., is permitted.

7. Expenditure for seed collection for Dibbling as well as Aerial seeding and the activity of Dibbling shall be met from the VSS wages component under MGNREGS. The seed should be collected by the VSS members for which wages will be paid to the VSS members. Seed should not be purchased from the VSS as per the Forest Schedule of Rates by the Department. Seed also should not be purchased or procured on payment from other sources. Required templates are already available for collection of seed and also for dibbling under MGNREGS. Collection of adequate quantities of good quality seed to meet the VSS-wise dibbling target of 50 ha for each of the VSS in all the VSSs in the jurisdiction of a Division using the VSS members, lies with the Divisional Forest Officer having jurisdiction.

8. As the seed collection on large scale is not a routine activity of VSS and as the VSS members have no experience in collection of seed of Forest species, the VSS members require guidance and supervision of the Forest staff to ensure that mature, viable and high quality seed only is collected and preserved until utilized. Guidance and close supervision also is required to ensure that dibbling is done properly by the VSS members to ensure that the seed is not wasted and high germination percentage is achieved. The Divisional Forest Officers may organize a training or demonstration for the VSS members in collection of mature, viable seed in the correct season, on how to preserve the seed from insect and fungal attacks and also on how to Dibble the seed correctly.

9. As the germination of seed dibbled depends on the quality of seed and correct method of dibbling, it is necessary that these activities should be closely supervised by the Forest Department. Training and demonstrations may not address these issues adequately. Therefore, the entire activity of seed collection, preservation of seed, treatment and dibbling shall be done under the active and close supervision of the Forest Beat Officers and Forest Section Officer having jurisdiction over the VSS. Each Forest Beat Officers shall be given a target of collection of required quantities of seed of local species for dibbling in 50 Ha of area. It should be noted that the quantity of seed required for dibbling in 50 Ha area will differ from species to species depending on the seed per KG, Germination % and Plant percentage etc., . For the guidance, such details including the best season for collection of various species is enclosed as an Annexure. Further, the State Silviculturists, Rajahmundry and Tirupathi will be able to provide such information for any species which is not found in the Annexure. Each Forest Beat Officer and Forest Section Officer shall also supervise the Dibbling of seed and are responsible to ensure that Dibbling is done properly in at least 50 Ha area per VSS.

10. In order to make the Forest Beat Officers and Forest Section Officers responsible for the success of the entire activity of seed collection and Dibbling, the Conservators of Forests and Divisional Forest Officers shall fix targets of seed collection and dibbling for each Forest Beat Officer and Forest Section Officer for the VSS under their jurisdiction taking in to consideration that each VSS shall collect seed required for dibbling in at least 50 ha per VSS. A **Seed Collection Action Plan** should be prepared for each Beat and communicated to the Forest Beat Officers and Forest Section Officers immediately with in a week and ensure that the seed collection is started immediately in view of the fact that seed of majority of the species will be available now and the seed collection season will end soon. The **Seed Collection Action Plan** will be beat-wise, VSS-wise and species-wise which means that the Action Plan will contain targets of collection of seed for each species for each VSS and for each Beat. A copy of the Seed Collection Action Plan prepared beat-wise shall be submitted to this office for monitoring not later than 1.2.2016.

11. Successful implementation of seed dibbling including collection of high quality seed and dibbling in time is the responsibility of the Divisional Forest Officer having jurisdiction. The Divisional Forest Officers, therefore are requested to bestow their personal attention on this important program of the Government which is reviewed by the Hon'ble Chief Minister. The Divisional Forest Officers and Conservators of Forests / Chief Conservator of Forests / Addl. Prl. Chief Conservator of Forests shall frequently inspect the activities during seed collection and also during dibbling activity to ensure that good quality, mature and viable seed is collected and preserved properly and dibbling is done in a correct manner. They should also include the item of seed collection and dibbling as one of the priority items for review during their meetings with the staff and record the progress of these activities in the minutes of the meeting. Where there is a laxity, necessary action should be taken to rectify the inadequacies.

B. Aerial Seeding:

12. Aerial seeding also shall be taken up in all the Divisions in the State during the year 2016-17. Seed required for Aerial seeding was procured by tenders in the year 2015-16 for lack of sufficient time for collection of required quantities of seed and also because the seed collection season has passed. For the Aerial seeding program for the year 2016-17, seed of native species shall be collected by each Divisional Forest Officer locally utilizing the services of the VSS members. For this purpose, the Divisional Forest Officers must first assess the suitable area for Aerial seeding. After assessing the total area that can be treated by Aerial seeding, the required quantities of species suitable for Aerial seeding have to be worked out. It is to be noted that all types of seed are not suitable for Aerial seeding, especially seed which are small in size, light in weight, winged seed etc., should not be used in Aerial seeding. It also should be kept in mind that seed used in Aerial seeding has to be pelletised and hence seed selected should be those which can be pelletised. The species selected should also be native species as far as possible but should not be aggressively weedy species which could replace native populations. After selecting the species and arriving at the suitable areas, the quantities of seed required should be arrived at taking in to consideration the seed per KG and germination %. As far as possible, seed of more than two or more species should be mixed for Aerial seeding to ensure diversity.

13. Seed for Aerial seeding also shall be collected through VSS as is to be followed for Seed dibbling as described in Section A above. Collection of seed, preservation and treatment shall be treated as VSS wage activities and not to be done as per the FSR. No purchase of seed is permitted by any method including tenders. All the seed required for Aerial seeding shall be done through VSS only. Where sufficient quantities of seed of a particular species are not available, the Divisional Forest Officers may obtain prior permission from this office to procure the same from Government agencies such as GCC. However, such cases shall be treated as exceptional cases and all efforts must be made to procure the seed through VSS only utilizing MGNREGS scheme.

14. Divisional Forest Officers should fix targets to the VSSs which can collect the seed of species selected for Aerial seeding. Such targets shall be part of the **Seed Collection Action Plan but should be shown separately for each VSS**. The Forest Beat Officers and the Forest Section Officer having jurisdiction over the VSS shall be responsible to collect the target quantities of good quality, viable and mature seed and also for preservation and treatment of the seed till the time the seed is pelletised.

15. The Divisional Forest Officers shall get the seed pelletised for Aerial seeding and complete the pelletisation at least one month before the monsoon season as the Aerial seeding has to be taken up as soon as the first rains are received.

16. The Divisional Forest Officers are responsible for collection of adequate quantities of good quality seed which are mature and viable and for ensuring that seed so collected is preserved properly to prevent pest, insect and fungal attacks. They are also responsible for ensuring that the seed are pelletised properly and in time and are ready for Aerial seeding at least one month before the onset of rainy season.

17. The Circle In-charge Officers also shall review seed collection, dibbling and aerial seeding in detail and bring any inadequacies to the notice of this office through a special report.

18. The Seed Collection Action Plan should be prepared and submitted to this office not later than 01.2.2016 and the work of collection of seed should be commenced immediately. A progress report should be submitted every fortnight on the progress of collection of seed.

Sd/- S.B.L.Misra
Prl. Chief Conservator of Forests
(Head of Forest Force)

To

All the Circle Heads (Territorial & Wildlife). They are requested to communicate the above circular instructions to all the Divisional Forest Officers working under their jurisdiction under proper acknowledgment and ensure to collect the seed as per circular instructions.

Copy to the PCCF (Admn.) and other APCCFs O/o the PCCF., A.P., Hyd.

Copy to ACF (MIS).

Copy to Stock File.

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Superintendent

Annexure I

Seed Calendar and other details for some native species

For species which are not included here, details may be obtained from the State Silviculturists, Rajahmundry and Tirupathi.

This is a tentative list and is not exhaustive and seed collection need not be limited to the species mentioned here.

1. *Acacia chundra* (Sandra)

Seed collection and Storage:

Fruits ripen in January-March and remain on the tree for long. Branches are lopped, pods collected, dried in the sun, beaten with a stick to separate the seeds and winnowed.

Seed biology:

No. of pods per Kg.	No. of seeds per kg.	Germination percentage	Plant percent	Germination period in days
2,500 to 5,000	30,000 to 38,000	40 to 80	20 to 90	7 to 15

2. *Acacia ferruginea* (InupaTumma)

Seed collection and Storage:

Fruits ripen from November-February. Seed is available for collection from December – April. Ripe pods are collected from the trees, dried and seeds extracted, cleaned and stored. Storage is best effected in earthen pots. Viability is retained for 12 to 16 months.

Seed biology:

No. of seeds per kg.	Germination percentage	Plant percent	No. of seedlings per Kg. of seed
5,900	90	80	4,720

3. *Acacia leucophloea*(Tellatumma)

Seed collection and Storage:

Pods ripen in April-June. Ripe pods are collected from the tree, dried in the sun and then beaten with a stick to extract the seeds.

Seed biology:

No. of seeds per kg.	Germination percentage	Plant percent	Germination period in days
37,000 to 49,000	42	30 to 42	7 to 30

4. *Albiziaamara* (Kondachigara)

Seed collection and Storage:

Fruits ripen in November-January. Seed collection is made in January to March; abundant fruiting in every year. Ripe pods are collected from the tree, dried and thrashed to extract the seeds. Seeds can be stored for two years without loss in viability.

Seed biology:

No. of seeds per kg.	Purity percentage	Moisture percentage	Germination percentage	Plant percent	No. of seedlings per Kg. of seed
14,000	80	8.5	83	74	10,360

5. *Albizialebeck* (Dirisanam)

Seed collection and Storage:

Pods ripen during December-February. Pods are collected, dried, thrashed and winnowed to get clear seeds. The viability of the seeds remains well for at least one year. It should be stored in sealed tin with insecticide since the seeds suffer from borer attack.

Seed biology:

No. of seeds per kg.	Purity percentage	Moisture percentage	Germination percentage	Plant percent	seedlings per Kg. of seed	Germination period in days
6700 to 11000	94	4.6	65 to 70	40 to 75	2960 to 9240	7 to 30

6. *Albizziaodoratissima* (Chinduga)

Seed collection:

Fruits ripen from September-December. Pods are collected by lopping the branches, dried in the sun and then the seeds are harvested. The seeds can be stored for quite a long period without loss of viability.

Seed biology:

No. of seeds per kg.	Germination percentage	Germination period in days	No. of seedlings per Kg. of seed
20000	Above 50	10 – 20	11000

7. *Albizziaprocera* (Chigara)

Seed collection and Storage:

Pods ripen from April-May. Pods are collected from the trees by cutting the branches; pods are dried in the sun for few days before they open. Seeds are extracted by gentle thrashing and winnowing. Seeds can be stored for 5 years without loss in viability.

Seed biology:

No. of seeds per kg.	Grams of seed per Kg. of fruit	Germination percentage	Plant percent	No. of seedlings per Kg. of seed	Period of Germination in days
19380 to 24000	250 to 370	50 to 80	50 to 70	10975	7 to 25

8. *Azadirachtaindica* (Vepa)

Seed collection and Storage:

Fruits ripen from June-August. The fruits are collected from the trees when fully ripe or are swept from the floor under the trees. The pulp is washed off, dried in shade and kept in air tight tin boxes. The seeds do not store well and the viability falls after two weeks.

Seed biology:

No. of fruits per kg.	No. of seeds per Kg.	Germination percentage	Plant percent	No. of seedlings per Kg. of seed	Period of Germination in days
2000 to 3000	4500	70 to 90	20 to 60	900 to 2700	7 to 21

9. *Cassia fistula* (Rela)

Seed collection and Storage:

Pods commence repining in December and continue from January-April. Ripe pods are collected off the trees in March-April. Seeds are separated from the soft pulp and washed with cold water before drying. Seeds can be stored for several years without loss of viability.

Seed biology:

No. of seeds per Kg.	Germination percentage	Plant percent	No. of seedlings per Kg. of seed
6000 to 7090	22 to 65	12 to 47	2400 to 2900

10. *Dalbergialatifolia* (Jittegi)

Seed collection and Storage:

Pods ripen from December-March. The ripe dark brown pods are collected from the trees by lopping the branches in February to March, dried in the sun and broken. Extraction of clean seed is not necessary for sowing. Pods stored in gunny bags. Seeds lose their viability appreciably when kept for one year or more.

Seed biology:

No. of seeds per Kg.	Germination percentage	Plant percent	No. of seedlings per Kg. of seed	Germination Period in days
21000	65	45	10300	7 to 21

11. *Dalbergiasissoo* (Sissoo)

Seed collection and Storage:

Fruits matured in December-January. Pods are collected from November to March. Pods are dried in the sun for 3 to 4 days. Well dried and moisture protected pods may be kept for 3 years, without much loss in viability.

Seed biology:

No. of pods per Kg.	No. of seeds per Kg.	Germination percentage	Plant percent	Germination Period in days
16000 to 18000	50000 to 53000	90 to 100	80	8 to 20

12. *Hardiwickiabinata* (Narayepi / Yepi)

Seed collection:

Fruits ripen from April-June. Pods 5 – 8 cm long, brownish, flat and one seeded near the top. Pods can be collected by lopping branches, dried for 3 – 4 days and stored in gunny bags or sealed tins with heavy dose of insecticide.

Seed biology:

No. of seeds per kg.	Germination percentage	Germination period in days	No. of seedlings per Kg. of seed
3200	Up to 70	5 – 20	1500 – 2000

13. *Holoptelea integrifolia* (Nemilnara)

Seed collection and Storage:

Fruits ripen from April-May. Fruits are plucked off the felled branches, cleaned and dried in the sun. seeds do not retain their viability more than 7 to 8 months.

Seed biology:

No. of seeds per Kg.	Germination percentage	Plant percent	No. of seedlings per Kg. of seed
25000 to 28500	70 to 80	60	15000 to 17000

14. *Madhucalongifolia* (Ippa)**Seed collection and Storage:**

Fruits ripen from June-July. Ripe fruits are collected by shaking the branches and the seeds are separated from the fruits by pressing and they are then dried. The seed, being oily, loses its viability quickly on storage. Good seed years occur in every alternate year. The seed collection is short and much of the seed crop is lost in rains.

Seed biology:

No. of seeds per Kg.	Germination percentage	No. of seedlings per Kg. of seed	Time taken for germination in days
750	13 to 57	212	10

15. *Pterocarpusmarsupium* (Yegisa)**Seed collection:**

Pods ripen from December-March. Pods are one seeded and indehiscent. The pods are collected from February – May from the trees or from the ground. Pods are dried and stored in gunny bags.

Seed biology:

No. of seeds per kg.	Germination percentage	Germination period in days	No. of seedlings per Kg. of seed
2000	Up to 50	15	500

16. *Soymidafebrifuga* (Somi)**Seed collection:**

Capsules ripen from May-June. Capsules – 5 celled. Seeds numerous in each cell, flat, winged at both ends with a soft felty covering. The fruits are collected from the trees in May – June before they dehisce and dried in the sun to separate the seeds.

Seed biology:

No. of seeds per kg.	Germination percentage	Germination period in days	No. of seedlings per Kg. of seed
10000	40	15 – 30	4000

17. *Syzygiumcumuni* (Neredu)**Seed collection and Storage:**

Fruits ripen from June-August. Fresh ripe fruits are heaped in the shade to rot and then washed in water to clean the pulp and get the seeds which are dried in the shade. Seeds lose viability quickly within 15 days and hence to be used immediately.

Seed biology:

No. of seeds per Kg.	Germination percentage	Plant percent	No. of seedlings per Kg. of seed
1100 to 1300	90	56	640

18. *Tamarindusindica* (Chinta)

Seed collection and Storage:

Pods appear during winter and ripen in spring season. Pods are collected during March to April from the branches. The pods are dried in the sun after removal of the shell, kneaded by hand and washed in water to separate the seed which is later dried in the shade and stored. The viability is retained for more than one year.

Seed biology:

No. of seeds per Kg.	Germination percentage	Plant percent	Germination period in days	No. of seedlings per Kg. of seed
1800 to 2600	70 to 75	40	10 to 20	320 to 1040

19. *Terminaliaalata* (NallaMaddi)

Seed collection and Storage:

Fruits ripen from February-April. The fruits are collected by lopping the branches. The best time for the collection of ripe fruits is just after the tree becomes leafless. The fruits are dried in sun for 3 to 4 days are stored in gunny bags. Viability remains for one year.

Seed biology:

No. of seeds per Kg.	Germination percentage	Plant percent	Time taken for germination in days	No. of seedlings per Kg. of seed
550	36 to 70	40 to 45	15 to 30	240 to 250

20. *Terminaliaarjuna* (Tellamaddi)

Seed collection and Storage:

Fruits ripen from February-May. Ripe fruits are collected in March either by lopping the branches or from the ground previously swept clean. The seeds are viable for at least one year when stored in sealed tins.

Seed biology:

No. of fruits per Kg.	Germination percentage (Untreated seeds)	Germination percentage (Treated seeds)	Plant percent	No. of seedlings per Kg. of seed
175 to 1450	50 to 60	90	35 to 50	60 to 225

21. *Terminaliabellirica* (Tani)

Seed collection and Storage:

Fruits ripen from November-February. Fruits are collected from healthy trees, depulped and the seeds are dried in the sun before storage. It can be stored for about a year though its viability and germination percentage is reduced from 65 – 70% to 40 – 50%.

Seed biology:

No. of fruits per Kg.	No. of depulped dry seeds per Kg.	Germination percentage	Plant percent	No. of seedlings per Kg. of seed
100 to 125	400 to 450	65 to 70	50 to 52	200 to 225

Annexure II

Seed Collection Action Plan

A							
SEED COLLECTION FOR DIBBLING							
S.No.	Species Name	Forest Section	Forest Beat	VSS Name	Quantity of Target of Seed	Quantity of Seed Collected	Area for dibbling
B							
SEED COLLECTION FOR AERIAL SEEDING							
S.No.	Species Name	Forest Section	Forest Beat	VSS Name	Quantity of Target Seed	Quantity of Seed Collected	Remarks

Sd/- S.B.L.Misra
Prl. Chief Conservator of Forests
(HoFF)

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Superintendent

Acknowledgement

Received Circular No. 1/2016/Res, issued vide Prl. Chief Conservator of Forests, (HoFF) A.P., Hyderabad Rc.No.17/2014/Res, Dt: 20-01-2016.

Sl. No.	Name and Designation	Signature
1	Addl. Prl. Chief Conservator of Forests Vizag	
2	Addl. Prl. Chief Conservator of Forests ,Guntur	
3	Chief Conservator of Forests Ananthapur	
4	Chief Conservator of Forests Wild Life Management Tirupathi	
5	Chief Conservator of Forests, Kurnool	
6	Conservator of Forests, FDPT Srisialam	
7	Conservator of Forests, Rajahmundry	
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