



Agroforestry

Newsletter



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Propagation of chironjee (*Buchanania lanzan* Spreng) by chip budding

Vegetative propagation is an integral part of horticulture industry as availability of quality planting material is the key to successful orchard. Of various methods of vegetative propagation, budding, grafting and air layering are of paramount importance in tropical and sub-tropical fruit trees. Further, for large scale multiplication from limited scion source, budding is most feasible method as it requires less scion material for the purpose. Several methods of budding are in vogue depending upon shape of bud and their placement method for various fruit species.

Chironjee, a priced dry fruit is hitherto growing naturally by seed in mixed dry deciduous forests of sub-tropics. Although, chironjee exhibit narrow range of genetic variability, yet vegetative propagation techniques are needed to conserve dwindling biodiversity and reduce long juvenile phase in order to domesticate the species on farmers field.

To begin with, patch budding was attempted in chironjee on one year old rootstock



planted in shallow gravelly red soil at the Centre. Budding was performed in 3rd week of June, 2000 but inspite of obvious union it failed to sprout. This may be either due to lesser amount of reserve food material to sustain longevity of bud or due to the fact that though bud was green but failed to establish vascular connections, hence did not sprout. Therefore, it was thought to use a bud with wood portion to take care of above possibility. With this view, a bud with wood, as detailed in method was taken out from scion material and budded on the root stock raised *in-situ*.

Method : In this method of budding a healthy bud was selected in the axil of 2 months old leaf emerging on new flush. The thickness of scion was around one cm. Leaf blade was removed with the help of a sharp knife leaving petiole intact. The upper cut is given about 2.0 cm above bud which goes downwards, taking wood portion with it simultaneously, up to 1.0-1.5 cm below the bud,

then lower cut is given about 1.0 cm below the bud so as to take out bud with wood. The depth of cuts depends upon thickness of root stock. Normally, it should be one fourth of root stock thickness. Thus size of bud is about 3.0 cm in length. A similar notch is prepared in the root stock and scion bud is placed at the juncture. The bud is pressed by hand to remove open spaces if any and tied tightly with white alkathene strip. In case, if cuts on root stock are wider, at least one side bark of scion and stock must be mated properly.

Thus, chip budding was successfully attempted in chironjee at the Centre in the 3rd week of August, 2000. The root stock was detopped about 8.0 cm above the bud after 20 days of budding to facilitate bud sprouting and

alkathene strip was removed. The bud swelled and sprouted within a month of budding indicating that the bud establishes vascular connection with root stock and sprouted to give rise a vegetatively propagated plant.

It is needless to emphasize here that budding saves precious and scarce scion materials besides easy and quick to do compared with grafting. The preliminary results are quite encouraging. There is a need to evaluate use of invigorated bud in this method and large scale multiplication of plants yet to be seen. Further, standardization of the method and optimization of budding period for varying locations need to be attempted in future.

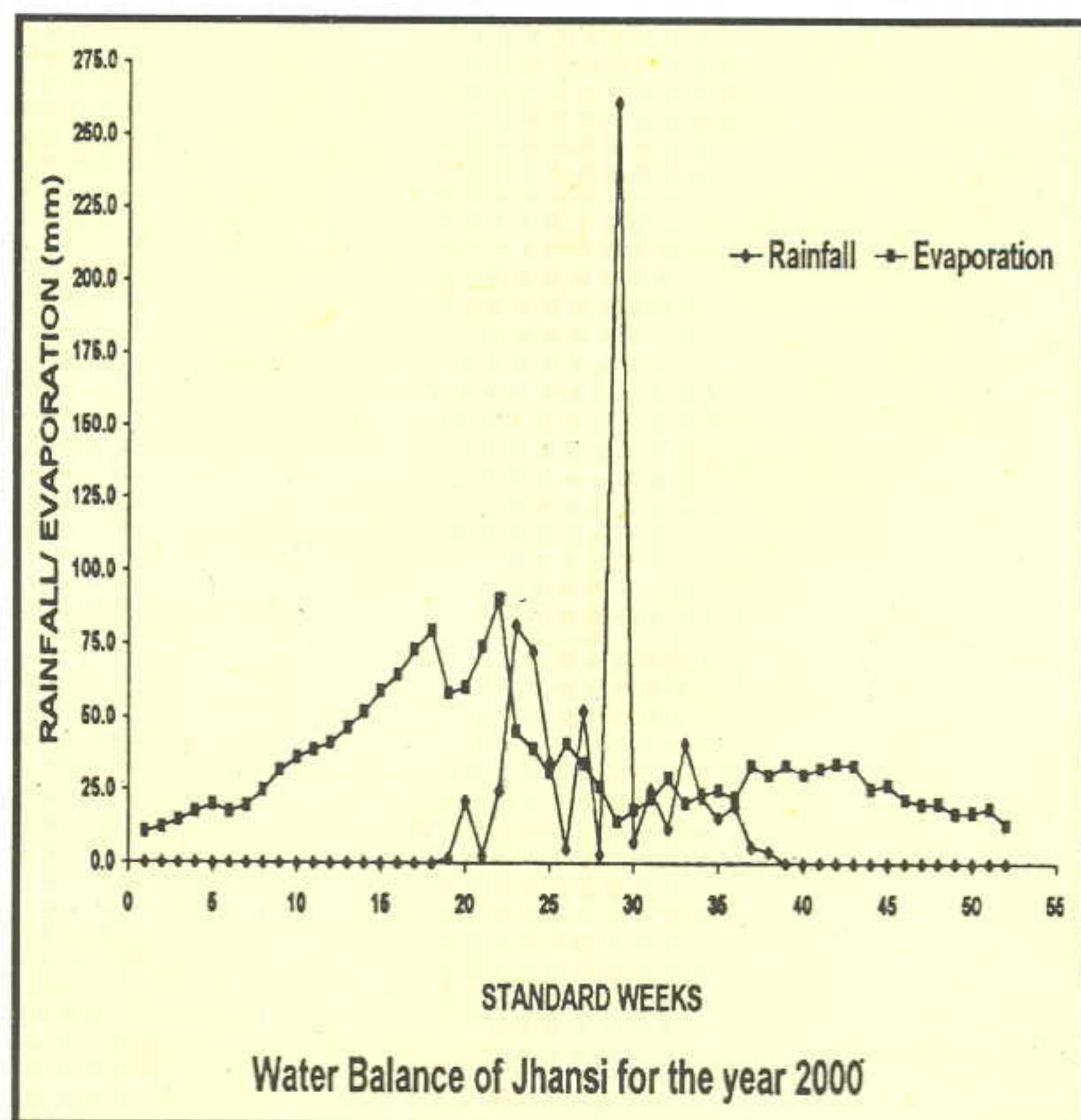
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National Research Centre for Agroforestry, Jhansi

Analysis of water balance of Jhansi for the year 2000

Jhansi district is located at 25°27' N latitude and 78° 35' E longitude, 271 m above mean sea level in semi arid Bundelkhand region. In this region, erratic trend, uneven distribution and uncertainty of rainfall are the major reasons of moisture stress and crop failure. Jhansi receives a mean annual rainfall of 913.2 mm (based on a 50 years period from 1946-1995) with 24 per cent variation.

Daily rainfall and evaporation for the year 2000 were collected from Indian Grassland & Fodder Research Institute (IGFRI), Jhansi. On the basis of these data, a graph of water balance has been drawn. In this year one day maximum rainfall recorded was 159.8 mm in 29th standard week. In the same pattern, the 29th standard week received the maximum rainfall to the tune of 260.7 mm within



four rainy days, whereas, the 22nd week accounted for highest evaporation of 90 mm. Total rainfall



The new millennium has started with a happy note in the area of agroforestry. The first initiative for convention on combating desertification in the thematic programme network (TPN-2) on agroforestry and soil conservation was awarded to India and launching workshop was organised on 14th March, 2001 at Vigyan Bhavan, New Delhi. The major emphasis of the network programme is to make concerted efforts



on combating desertification through agroforestry and soil conservation in arid, semi-arid and dry sub-humid tropics of Asia. The second major initiative has been the presentation of National Agriculture Policy document in which agroforestry received a major thrust for efficient nutrient recycling, nitrogen fixation, organic matter addition and for improving drainage. The third initiative has been the constitution of Task Force on Greening India on Agroforestry under the chairmanship of Dr. D.N. Tiwari, Hon'ble Member, Planning Commission, Govt. of India. The Task Force has also recommended that for sustainable agriculture, agroforestry may be introduced over an area of 14 m ha out of 46 m ha irrigated areas that are degrading due to soil erosion, water logging and salinisation. For integrated and holistic development of rainfed areas, agroforestry is to be practiced over an area of 14 m ha out of 96 m ha. This all will, besides ensuring ecological and economic development, provide livelihood support to about 350 million of people.

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(K.R. SOLANKI)

for the year was 711.4 mm which was spread over 37 rainy days. The days receiving less than 2.0 mm rainfall are not considered as rainy days. It is clear from the figure that deficit rainfall weeks are 1-22, 26, 28, 30, 32 & 34-52, whereas, rest of the weeks viz. 23-25, 27, 29, 31 & 33 are surplus. The figure also reveals that there are clear-cut dry spells during monsoon season. Total surplus rain during monsoon was about 361.3 mm (50.8 per cent of total rainfall).

Thus, the above analysis provides an opportunity for water harvesting by constructing suitable structures, which can be easily afforded by the farming community, and would help farmers during dry spells of *kharif* and irrigating *rabi* crops.

**R.H. Rizvi, Ramesh Singh, Pradeep Behari*,
R. K. Tewari and K. Kareemulla**

National Research Centre for Agroforestry, Jhansi.

* Scientist (Sr. Scale), IGFRI, Jhansi

Human Resource Development

- ❑ Dr. K.R. Solanki, Director participated in "Executive Development Programme in Agricultural Research Management" at NAARM, Hyderabad during February 2-5, 2001.
- ❑ Dr. K.R. Solanki, Director attended the workshop on "Administrative Vigilance for Senior Executive" at India International Centre at New Delhi from March 14-16, 2001.
- ❑ Dr. K.R. Solanki, Director attended the International Conference on "Sustainable Development and Sustainable Life Style" at New Delhi during April 21-23, 2001.
- ❑ Dr. P. Rai, Pr. Scientist, Dr. K. Kareemulla, Sr. Scientist, Dr. Ram Newaj, Sr. Scientist, Er. Ramesh Singh, Scientist, and Sh. C. K. Bajpai, T.O. participated in Group Meeting of NATP (RNPS-3) "Developing Live Fencing Systems for Soil and Water Conservation, Crop Diversification and Sustaining Productivity for Rainfed Region" held at UAS, Dharwad during January 18-19, 2001.
- ❑ Dr. P. Rai, Pr. Scientist and Dr. K.S. Dadhwal, Pr. Scientist attended High Power Committee Meeting on "Role of Agroforestry in Disaster Management" held at CSWCR&TI, Dehradun on February 12, 2001.
- ❑ Dr. P. Rai, Pr. Scientist, Dr. K.S. Dadhwal, Pr. Scientist, Sh. Munna Ram, Sr. Scientist, Dr. Ram Newaj, Sr. Scientist, Dr. R.P. Dwivedi, Scientist, Dr. Ajit, Scientist and Dr. Rajeev Tiwari, T.O. participated in the National Seminar on "Natural Resource Management" held at Bundelkhand University, Jhansi from March 15-16, 2001.
- ❑ Dr. K.S. Dadhwal, Pr. Scientist and Er. Ramesh Singh, Scientist attended the National Conference on "Resource Conservation and Watershed Management (RCWM)" at CSWCR&TI, Dehradun from May 23-25, 2001.
- ❑ Dr. K.S. Dadhwal, Pr. Scientist attended the workshop on "GEF Projects under Operational Programme -12" at ICFRE, Dehradun from May 31-June 02, 2001.
- ❑ Dr. R.V. Kumar, Scientist participated in the Training Course on "Technique in Plant Genetic Engineering" at NRC on Plant Biotechnology, Sponsored by NATP, during February 26 to March 18, 2001.
- ❑ Sh. R.S. Yadav, Scientist attended the National Symposium on "Impact of Human Activities on Thar Desert Environment" organised by CAZRI, Jodhpur during February 15-17, 2001.

Institute Management Committee

The meeting of Institute Management Committee (VIth meeting) was held on 25th January, 2001 under the Chairmanship of Dr. K.R. Solanki, Director, NRCAF, Jhansi. Dr. A.K. Sharma, Head, Regional Station, CSWCR&TI, Datia, Dr. L.P. Mishra, Ex. Principal Scientist, IGRI, Dr. K.S. Dadhwal, Principal Scientist, NRCAF, Jhansi, Sh. S. Bilgrami, Sr. Finance & Account Officer, IGRI, Jhansi, Sh. N. Raja, AAO, NRCAF, Jhansi and Sh. R.B. Sharma, AF& AO, NRCAF, Jhansi attended the meeting. Dr. P. Rai, Principal Scientist and Dr. V.K. Gupta, Principal Scientist, NRCAF, Jhansi were the special invitees.

The committee visited the research farm and was shown the research activities and the infrastructural development of the Centre. The Director gave an overview of the developmental activities of the Centre.

So far as infrastructural development is concerned, the committee was taken to the site of construction of main institutional building and residential quarters, Director's residence +type V(2 no.) and type 1 (6 no.) quarters. Construction of institutional building costing Rs. 250 lakhs is in progress. The construction of boundary wall was also seen. The committee has an agreement for priority on security matters i.e. construction of wall to ensure security. For eviction of the land if occupied by the village residents (residing for several decades) can be taken separately which shall take its own time and pending the construction of boundary wall should not be withheld. The committee appreciated progress of the works.

Staff Research Council

A meeting of Staff Research Council (SRC) was held during May 17-19, 2001 under the Chairmanship of Dr. K.R. Solanki, Director, NRCAF, Jhansi. All the Principal Scientists, Senior Scientists and Scientists participated in the SRC meeting.

IJSC meeting

Meeting of IJSC was held on 20.2.2001 under the Chairmanship of Dr. K.R. Solanki, Director, NRCAF, Jhansi.

New project - INARIS (NATP)

A new research project entitled "Integrated National Agricultural Resources Information System - INARIS" - Agroforestry Database Development Programme in the Mission Mode under National Agricultural Technology Project (NATP) has been approved by the Council. The project has been initiated at the Centre from 1st April, 2001 and the duration of the project is two years & nine months. Dr. Ajit, Scientist, is CCPI of the project at this Centre. The project envisages to develop comprehensive national agroforestry database using secondary data/published information. Indian Agricultural Statistics Research Institute, (IASRI), New Delhi is the lead centre with 13 cooperating centres developing database on their respective mandates. The total budget allocation for Agroforestry Database Development Programme at NRCAF, Jhansi is Rs. 52.21 lakhs.

Kisan goshti



A Kisan Goshthi was organised by the Centre at village Khajraha Bujurg, Block Babina, District Jhansi on March 2, 2001 under the Chairmanship of Dr. K.R. Solanki, Director, NRCAF, Jhansi. About 400 farmers, village women and village youths participated in the Kisan Goshthi.

Training on pruning of Desi Ber



A two days training programme on pruning of desi ber was conducted at village Bamer in Babina block of Jhansi District during May 25-26, 2001 and about 33 farmers and village youth participated in the training programme.

OBITUARY



Dr. A. K. Bisaria, Sr. Scientist of this Centre expired on 5th May, 2001. Born on 01/10/1949, Dr. Bisaria received his M.Sc. in 1970 and Ph.D. in 1974 from

Agra and Meerut Universities, respectively.

Before joining to ICAR at Central Research Institute for Jute and Allied Fibers, Barrackpore in 1981, Dr. Bisaria served as lecturer at DAV (PG) College, Muzaffarnagar and Hindu (PG) College, Moradabad from February, 1974 to March, 1981.

Dr. Bisaria joined the National Research Centre for Agroforestry, Jhansi in 1991 as Sr. Scientist (Plant Physiology). He has guided five research students for their Ph.D degree. He has authored over 100 original research publications and was associated with many Professional Societies. Dr. Bisaria leaves behind his wife and two daughters.

Above all he was warm hearted and always willing to offer help. May his soul rest in peace.

Research Advisory Committee

A meeting of Research Advisory Committee (RAC) was held during April 27 - 28, 2001 under the chairmanship of Dr. R. V. Singh, Ex. DG, ICFRE, Dehradun. Dr. J. P. Chandra, WIMCO, Distt. U.S. Nagar (Uttaranchal), Prof. K. S. Neelakantan, IFS, Dean, Forest College and Research Institute, Tamil Nadu Agricultural University, Mettupalayam and Dr. D.K. Paul, ADG (AF), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi also participated in the meeting. The following recommendations of RAC emerged out :

- Recommended appropriate research on the nursery technology of species whose planting material may be required by farmers of Bundelkhand .Sufficient extension education of proven technology be imparted by NRCAF.
- In view of increasing importance of agroforestry and of the excellent work done in various parts of the country by the farmers, the RAC recommended documentation of traditional agroforestry systems and of the indigenous knowledge available with the farmers on the management practices in respect of different species grown by the farmers on extensive scale. Some of the



success stories may also be documented and published to sell the concept of agroforestry among the interested farmers.

- RAC recommended taking up of participatory research involving the farmers. Such type of research may include recording very simple data on the species growing on farmer fields such as recording their survival and diameter growth rates. In case of agroforestry system already adopted by the farmers, keeping records by the farmers on the production of agricultural crops and of the returns from tree component including fruit trees, can generate very useful data without much efforts and expenditure. Such participatory research may be undertaken at as many places as possible, including the centres of AICRP- Agroforestry and NRCAF.

Promotions

Sh. S. G. Dhamdhare , Smt. Uma , Shri Rajendra Singh and Shri R.N. Singh, Sr. Technical Assistants (T-4) were promoted to the post of Technical Officer (T-5) w.e.f. 01.01.2000. Shri Ram Bahadur and Shri S.P.S. Yadav, Technical Assistants (T-2) were promoted to the post of Technical Assistants(T-3) w.e.f. 01.01.2000.

Visitors

Sh. Bhaskar Barua, Secretary, Government of India, Ministry of Agriculture, New Delhi.

Sh. Fagu Chauhan, Hon'ble State Minister (Live stock), Uttar Pradesh.

Dr. A.K. Sharma, Head, Regional Station, CSWCR&TI, Datia.

Dr. L.P. Mishra, Retd. Pr. Scientist, IGFRI, Jhansi.

Dr. R. V. Singh, Ex. Director General (ICFRE), 176, Vasant Vihar-I, P.O. New Forest, Dehradun (Uttaranchal).

Sh. S. Bilgrami, Sr. Finance & Account Officer, IGFRI, Jhansi.

Dr. R.N. Kaul, Ex. Principal Chief Conservator of Forest, Arunachal Pradesh.

Dr. J. P. Chandra, 306, Avas Vikas, Rudrapur, Distt. U.S. Nagar (Uttaranchal).

Prof. K.S. Neelakantan, IFS, Dean, Forest College and Research Institute, Tamil Nadu Agriculture University, Mettupalayam, Tamil Nadu.

Dr. D.K. Paul, ADG (AF), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi.

Dr. R.K. Gupta, Regional Facilitator, CIMMYT India, NASC, Pusa, New Delhi.

Dr. Gogate, Director of Social Forestry, Maharashtra State Forest Department, Pune.

Dr. D. N. Tiwari, Member Planning Commission, Govt. of India & Ex. DG (ICFRE), Dehradun.

Dr. Ram Prasad, Director, IIFM, Bhopal.

Dr. J. C. Tiwari, ADG (Food & Forage Crops), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi.

Dr. S.K. Bhatnagar, Project Coordinator (Pearl Millet), RAU (Mandore), Jodhpur.



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