

## Relevance of Vrikshayurveda in Agriculture Today: A Tele-interview

*Dr YL Nene (YLN), Chairman, Asian Agri-History Foundation was interviewed on 29 March 2012 by a freelance journalist Ms Chitra Balasubramaniam (CB), (New Delhi).*

### **CB: How did you chance upon this topic on Vrikshayurveda?**

**YLN:** The search for Surapala's Vrikshayurveda spanned over a period of four decades. So much time was taken mainly because of my preoccupation with professional career in agriculture at Pantnagar University (1960–74) and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad (1974–96).

In late 1950s, while doing my PhD work at the University of Illinois, Champaign-Urbana, USA, a professor asked me casually that though the Indian civilization is an ancient one, we never get to read about its contribution to world agriculture. We only read about the contributions of West Asian, Egyptian, and Hellenic civilizations to ancient agriculture. Needless to say that I just could not answer that question and had to admit ignorance. However, I could never erase the memory of my embarrassment. Therefore, I kept on looking for any bit of information on our ancient agriculture throughout my professional career (1960–96).

It was in 1960s that I read about Surapala's Vrikshayurveda in the book "Agriculture in Ancient India" by SP Raychaudhuri, published by the Indian Council of Agricultural Research (ICAR). Raychaudhuri

gave some information on the contents of Vrikshayurveda, which unfortunately gave impression about a very primitive agriculture. Around 1990, I read somewhere that a German professor, Dr Rahul Peter Das had translated Surapala's Vrikshayurveda in German and it was mentioned that Professor Das had access to the Sanskrit manuscript available in the Oxford library. In 1993 I could purchase complete manuscript of the Vrikshayurveda on a microfiche from the Bodleian Library at Oxford. I got it printed with enlarged size of words in the text so that it became easily readable.

I had casual contact with Dr Nalini Sadhale, who was Professor and Head of Sanskrit Department, Osmania University, Hyderabad. I approached her with a request to translate. She told me that the script was very old and it would be a tough task to translate it. However, she agreed.

It had become my passion to study history of Indian agriculture by 1990s. I established the Asian Agri-History Foundation (AAHF) in 1994. Though I was due to retire from ICRISAT in 2001 (65 years), I decided to seek early retirement upon completion of 60 years. Thus I retired on December 31, 1996 and began studying "agri-history" full time from the next day in the Office that I had set up as an annex to my house in Hyderabad, with 3 staff members.

Dr Nalini Sadhale had completed translation of Vrikshayurveda in early 1996; so we printed it by November 1996. The “book” included the Sanskrit handwritten text, its English translation, and critical commentaries by scientists in the context of “modern” agriculture. The Foundation, as a non-profit trust, was inaugurated on 19 November 1996 at the India International Centre in New Delhi.

**CB: What is the relevance of Vrikshayurveda? Can this be practiced widely in today’s modernistic world?**

**YLN:** The word “Krishi” and “Varta” in general were used for field crop agriculture, animal husbandry, and trade since very ancient times (Ramayana). The term “Vrikshayurveda” has been in use by the time Kautilya (296–321 BC) compiled his “Arthashastra”. The next document on Vrikshayurveda, a very brief one, was included in “Brhat Samhita” by Varahamihira (505–581 AD). We then found two texts compiled in the 11<sup>th</sup> century AD: Surapala’s Vrikshayurveda (c. 1000) and Vrikshayurveda chapter in Lokopakara composed by Chavundaraya (1025). In the 12<sup>th</sup> century AD, Chalukya King, Someshvardeva compiled an encyclopedia “Abhilashitarthachitamani” or “Manasollasa” in which a full chapter on Vrikshayurveda was included. We then came across a 13<sup>th</sup>-century AD text titled “Upavanavinoda”, which deals with landscape gardening. Upavanavinoda was compiled by Sarangadhara, a courtier and scholar in the court of King Hammira. In the court of great Maharana Pratap, a scholar, Chakrapani Mishra, compiled (c.

1577 AD), adding his own experience, the text “Vishvavallabha”, which has contents similar to Surapala’s Vrikshayurveda, with a good deal of additional information. Chronologically the last text available is “Shivatatvaratnakara” (in Kannada) compiled by King Basavaraja of Keladi, now in Karnataka; it has a chapter on “Vrikshayurveda”.

In general, Vrikshayurvedas deal with the following aspects:

Detection of underground water; spacing between trees; methods of propagation; preparation of pits for planting; seed treatments; nourishment; protection; and some other relevant information. Thus Vrikshayurvedas confined mostly to arboriculture, with some exceptions.

The texts on “Krishi” covered farming of crops and management of farm animals. Krishi-Parashara (c. 400 BC) and Kashyapiyakrishisukti (c. 800 AD) are the two very important texts that we have published.

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All the texts describe agricultural and horticultural principles and practices that are not different from what is practiced today. Our ancestors had experience of farming through millennia but lacked the knowledge of why and how; i.e., why and how the practices they developed actually worked. Our ancients used all organic materials for nourishment and protection against insects and diseases. Thus the ancient and medieval knowledge is very relevant to modern agriculture, as we are in the process of reducing dependency on chemicals. The ancient practices can certainly be followed.

**CB: Is it a practical concept in today's world? Where in India is it being applied on a commercial basis?**

**YLN:** It is very definitely practical and almost immediately applicable to small farmers, especially those who still use bullock and keep cows. As you know more than 70% farmers fall into this category. We personally know many farmers in Maharashtra, Karnataka, Tamil Nadu, Kerala, Uttarakhand, Assam, Arunachal Pradesh, Gujarat, and other states, who have made a good beginning in adopting Vrikshayurveda practices. Farmers are modifying methods to suit their convenience. Also Vrikshayurveda methods are being followed seriously at the Maharishi Vedic University, Vlodrop, The Netherlands.

We have compiled a list of organizations where Vrikshayurveda methods have been adopted partially or fully (see box on p. 426). Tea estates are interested in producing organic tea. We have interacted

with most estates and organizations. Dr SL Choudhary, an agricultural scientist from Udaipur, who voluntarily (honorary) joined AAHF almost from the start, has been our main link with others.

**CB: How long did it take to bring about the first book on Vrikshayurveda?**

**YLN:** I think I have answered the question above.

**CB: Is it a very difficult concept to follow in practical farming? What are the problems faced and the biggest advantage?**

**YLN:** No, it is not and should not be. Small farmers, all over India still follow operations guided by *nakshatras*; they readily accept the texts that we have published. The state of Gujarat (through agricultural universities), based on Parashara and Varahamihira methods, is publishing calendars for more than 3 years predicting daily rainfall throughout the rainy season. Correlations are as good as those predicted by the Meteorological Department. A survey of agriculture, through available literature, clearly establishes the fact that Indian farming was on sound footing; detecting

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### Adoption of Vrikshayurveda methods in tea estates and other organizations

#### India

1. Poab Estates Private Ltd., Nelliampathy (Kerala)
2. Chamong Tea Estate, Darjeeling (West Bengal)
3. Nagrifarm Tea Estate, Darjeeling
4. Pussimbing Tea Estate, Darjeeling
5. Lingia Tea Estate, Darjeeling
6. Shree Dwarika Tea Estate, Darjeeling
7. Tumsong Tea Estate, Darjeeling
8. Bonnokburn, Darjeeling
9. Phoosering, Darjeeling
10. Dhajia Tea Estate, Darjeeling
11. Soom Tea Estate, Darjeeling
12. Tukdah Tea Estate, Darjeeling
13. Ging Tea Estate, Darjeeling
14. Longview Tea Estate, Darjeeling
15. Tukver Tea Estate, Darjeeling
16. Sugma Tea Estate, Darjeeling
17. Moud Tea Estate (Assam)
18. Sewpur Tea Estate (Assam)
19. Bherjan Tea Estate (Assam)
20. Tonganangaon Tea Estate (Assam)
21. Abali Tea Estate (Arunachal Pradesh)
22. Deckiajuli Tea Estate, Parry Agro Industries, (Assam)
23. Gulma Tea Estate, Siliguri (West Bengal)
24. Small tea growers in Assam and West Bengal
25. Krishi Vikas Kendra, Jhalawah (Rajasthan)
26. Project Office, DST, Kota (Rajasthan)
27. Agharkar Research Institute, Pune (Maharashtra)
28. CAZRI, Jodhpur (Rajasthan) (Dr Arun Kumar)
29. ARS, Sri Ganganagar (Rajasthan) (Dr RB Gaur)
30. CIKS, Chennai (Tamil Nadu)
31. Department of Plant Protection, Allahabad Agricultural Institute, Allahabad (Uttar Pradesh)
32. PG Research Centre in Botany, Tuljaram Chaturachand College, Baramati (Maharashtra)
33. Institute of Ayurveda and Integrative Medicine, Attur, Bangalore (Karnataka)
34. Central Institute of Subtropical Horticulture, Lucknow (Uttar Pradesh)
35. IIT, Kharagpur (West Bengal)
36. BAIF, MITTRA Regional Centre, Jawahar, Thane (Maharashtra)

#### The Netherlands

37. Maharishi Vedic University, Vlodrop

underground water, forecasting rain, ensuring seed quality and quantity, nourishment, weeding, protection, harvesting, threshing, and storage. There was a wide range of bullock-drawn and manual wooden implements (with use of iron) all over India, with suitable local variations. I firmly believe small farmers with animal power can adopt Vrikshayurveda methods, which require cheap inputs, and get more yields than their needs in a sustained way. Also I believe our fruit production can be based completely on Vrikshayurveda. For field crops, such as wheat, rice, etc., chemical fertilizers may be required until we are able to raise the total organic matter in soils from the current <0.5% to >2.0%. After that stage chemicals may become unnecessary.

The major barriers to Vrikshayurveda are the attitudes of our own agricultural scientists in

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universities and elsewhere. For more than 10 years now, I have delivered innumerable lectures on Vrikshayurveda to agricultural scientists. AAHF has published a 900-page resource book and an introductory textbook on agri-history for prompting a change in attitude. The ICAR had agreed to introduce an undergraduate course in all universities but retracted on the decision because of a strong resistance from deans. The deans believe we will go back to primitive agriculture in which students will have to work with cow dung, bullocks, etc. and will have to give up the cutting edge research in biotechnology, nanotechnology, etc. The fear is imaginary. With the current attitude, the communication gap between common farmers and scientists will never be filled.

Another problem is the resistance from strictly vegetarian farmers, who reject the idea of using the fermented liquid fertilizer recommended in all different Vrikshayurvedas, because the liquid ferment

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is prepared from flesh, marrow, bones, animal fat, etc. In my articles I have suggested vegetarian substitutes. I keep on telling the vegetarian audiences that almost all Vrikshayurvedas were written by vegetarian Brahmins. It should be noted that Japan, and some western countries are introducing liquid ferments with addition of some microbes, and marketing these. Perhaps our scientists will wake up after the liquid ferments are widely used in the West.

Incidentally Indian scholars of the ancient era were the first to develop and use “kunapajala”, a liquid ferment as most effective manure. Other manures were from animal excreta like those recommended in ancient West.

**CB: What is the focus of Vrikshayurveda or pulse point of the entire concept? Is it popular in India or does more needs to be done?**

**YLN:** The focus of Vrikshayurveda and Krishishastra, now that we have the original texts available with us, is on the field use of these prescriptions and practices to the extent possible. This would ensure reduction of use of chemicals and take our agriculture towards organic farming. As mentioned earlier, we have been making efforts to introduce contents of our agricultural heritage to the undergraduates. This is to stimulate the young minds to undertake in-depth research in several topics in both Vrikshayurveda and Krishishastra.

**CB: Any other thing you will like to add about your association with the concept, work in the field, your organization ... journal, conferences, validation, grants,**

**indigenous practices, documents?**

**YLN:** Here are some points:

1. To ensure participation of a larger number of knowledgeable persons in “digging” out information, we have been publishing a quarterly journal, Asian Agri-History. It is in the 16<sup>th</sup> year now. There has never been a dearth of articles submitted voluntarily.
2. Since 1998, we have organized about 10 conferences on different topics. These were held in collaboration with local institutions in Rajasthan, Uttarakhand, Assam, West Bengal, and Andhra Pradesh. Proceedings with recommendations were published. We have been following up on the recommendations to the extent possible.
3. One of the key steps necessary is to conduct research on validation of Vrikshayurveda and Krishishastra practices. Less than 10 years ago, the ICAR published 4 large volumes documenting hundreds of indigenous practices followed throughout India. The sad fact is that these volumes remained in the shelves of a few libraries, not even all agricultural universities. Deans and directors of these universities showed no interest in carrying out validation research. ICAR needs to encourage validation research by giving grants specifically for the purpose. At present I see no signs of any action by the ICAR.
4. It is encouraging, however, to see educated farmers and some commercial farmers have introduced Vrikshayurveda.

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5. Our trustees, except one, are agricultural scientists of international repute. They raised the initial corpus. Over the years many individuals and a few corporations have donated money. We have thus managed our activities without seeking regular grants from any source. We are currently in the process of negotiating arrangements to establish a Vrikshayurveda training center attached to farm land near Jaipur, Rajasthan. This is in very preliminary stage.