

GB Pant University of Agriculture & Technology
ASIAN AGRI-HISTORY FOUNDATION
PANTNAGAR



VRIKSHAYURVED FARMING NEWS



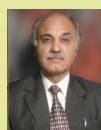
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From the pen of Chief Editor

Vrikshayurveda is the ancient Indian science of plant life that was compiled by Surapala approximately 1000 years ago. It is learnt that Surapala lived and worked in Bundelkhand in central India. Unfortunately his text was forgotten and the knowledge he had painstakingly compiled remained obscured for several centuries. Late Dr. Y.L. Nene, the founder of Asian Agri History Foundation, obtained a copy of Surapala's manuscript from the Bodleian library in Oxford and had it translated from Sanskrit into English by Dr. Nalini Sadhale in 1996. It was only after this that Surapala's work became known to the world. Surapala's Vrikshayurveda deals with the science of plant life such as procuring, preserving, and treating seeds before planting; preparing pits for planting saplings; selection of soil; method of watering; nourishments and fertilizers; plant diseases and plant protection from internal and external diseases; layout of a garden; agricultural and horticultural wonders; groundwater resources; etc. Dr. Nene firmly believed that small farmers with animal power could adopt Vrikshayurveda practices, which require cheap inputs, and get more yields than their needs in a sustained way. This has been seen in Golaghat area of Assam where small farmers have demonstrated that the methods of Vrikshayurveda are suited to tea, paddy and vegetable farming. They have achieved excellent results within a short period of time with only a modest financial investment. Their gardens and farms are now totally organic and some have been certified as organic. Dr. Nene was of the firm opinion that the liquid manure kunapa jal will work wonders if applied regularly in the fields by the growers. The conversion to organic production can be made smoothly by growers if they adopt these methods wholeheartedly and give up the use of chemicals totally. In his words "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." Vrikshayurveda practices certainly deserve validation research at a larger scale in different agroecosystems. A good initiative has already been taken by the ICAR that the contents of our agricultural heritage are being introduced to the undergraduates in the country.



Dr J Kumar

Pioneers of Indian Agriculture

(Courtesy: Dr. SK Khandelwal, Secretary, AAHF Rajasthan Chapter, Udaipur, Rajasthan)

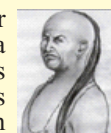
The Asian Agri-History Foundation, through its untiring efforts, collected information about the Pioneers of Indian Agriculture who had good knowledge of the best practices of Indian

Agriculture in ancient times. These pioneers were sages, physicians, learned scholars, and administrators, etc., who wrote the best practices of Indian Agriculture mostly in Sanskrit Language in the Pothi style. The Pioneers of Indian Agriculture in ancient times are as follows-

Parashara (c. 400 BCE): Sage Parashara was the author of the manuscript **Krishi-Parashara**. Krishi-Parashara is an important treatise of ancient Indian agriculture which describes the work done on the subject of agriculture in ancient times. The book emphasizes the importance of good management in farming; describes management of cattle – sanitation, health, nutrition; describes several methods of rainfall prediction, and emphasizes the importance of seed and their collection, storage after thorough drying, removal of weed seeds and seed uniformity. The information on agriculture given in this important book of agriculture is relevant today and is being used by farmers at present. This book was written for the welfare of farmers and is considered to be the first book of Ancient Indian Agriculture.



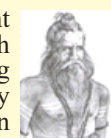
Kautilya (321–296 BCE): Kautilya or Chanakya or Vishnugupta was the Chief Advisor of Chandragupta Maurya. The book written by Kautilya was known as **Kautilya Artha-sastra**. Kautilya gave great emphasis to agriculture and suggested a separate post of an Agriculture Chief (Superintendent), which was referred to as Sitadhyaksha. Kautilya described the techniques of rainfall measuring, seed procurement and treatment, cropping pattern and methods, and harvest time etc. He also mentioned the importance of animals, especially the importance of cows.



Varahamihira (505-587 CE): Varahamihira was the author of **Brihatsamhita**. A wide variety of subjects like astronomy, physics, geology, horticulture and archeology have been widely described in Brihatsamhita. A chapter Vrikshayurveda was also included in it. This undoubtedly proves that the science of Vrikshayurveda was fully developed before the sixth century CE.



Kashyapa (c. 800 CE): Kashyapa wrote an excellent text **Kashyapiyakrishishukti** on agriculture which detailed rice production in irrigated areas of India. Along with other aspects like strong support to agriculture by the ruler, participation of people of all castes in agricultural activities, cattle management, soil quality, growing pulses on high land as well as vegetables, fruits, spice crops, ornamental plants. The emphasis was given on growing trees, preparing gardens, marketing and mining..... *Contd. at page 4*



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Vrikshayurveda-based Farming in Kannur Special Sub-Jail during the year 2019

(Courtesy: Jidesh CV, Secretary, KCAAHF, Kannur, Kerala)

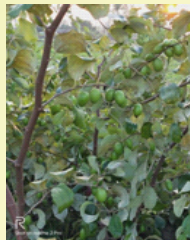
Vrikshayurveda-based vegetable farming was introduced for the first time in Kannur Special Sub-Jail by KCAAHF in association with Agricultural Department during the year 2019. Amaranths, bhindi, brinjal, tomato, chili, cowpea, ridge gourd, cabbage, cauliflower etc., were the major vegetables being cultivated. Since this Sub-Jail is situated in heart of Kannur town with very little cultivable area, these vegetables were cultivated in 500 grow bags utilizing all the available area of the Sub-Jail. Herbal Kunapajala was prepared by the prisoners and used as the major organic manure. It was applied as basal drenching and foliar sprays @ 100 ml/litre at fortnightly interval. Cow urine pesticide was used to manage sucking insect-pests.



Initially very few prisoners showed interest in this farming activity, but later when they saw the growth and tasted these vegetables, gradually all the prisoners started taking keen interest in Vrikshayurveda-based farming. All the vegetables harvested were utilized in the kitchen of Special Sub-jail and served to prisoners. Some prisoners after their release from the Sub-Jail approached us for further guidance and started organic farming as a source of their livelihood. The planting and harvesting of Vrikshayurveda vegetables was done by Sri Rishiraj Singh IPS, Jail DGP of Kerala.

Success stories of Vrikshayurveda-based organic farming from the fields of Uttarakhand farmers.

Shri Sameer Das (Mobile: 7060000118), an engineer by profession, is also an innovative organic farmer of Sitarganj, district Udham Singh Nagar. He is using Herbal Kunapajala on his farm for the last two years in lemon, apple berries, pomegranate, papaya and chili in his own farm at Sitarganj. He got tremendous success, and is fully satisfied with the use of Herbal Kunapajala in all the crops. He saw significant changes in his farming and farm productivity after continuous application of Kunapajala. Soil gets nourished and plants get protected from insects and diseases. Fruit and flower drop in the crops were reduced. On the basis of his two years' experience of using Kunapajala, he is of the firm belief that by continuous use of Kunapajala one can produce poison-free food crops in a sustainable manner and conserve natural resources to save this planet. He believes that Kunapajala works as sanjeevani booti for the growth and development of all the crops. As per his experience, after the application of Kunapajala, the soil starts respiring and plants are talking and laughing. It is a boon from Asian Agri-History Foundation and its founder Chairman late Dr YL Nene.



Kastkar Vikas Samiti – an NGO

Maya Negi (Mobile: 9410373379), President of NGO Kastkar Vikas Samiti in Kotabagh block of district Nainital, is developing herself in resolving the practical challenges of hill agriculture and working in area of cultivation of pulse crops, vegetables viz. pea, tomato, onion with the aim of integration with livestock. The Samiti is working for encouraging



organic farming in the Kotabagh block, Nainital district, and also at the state level by creating NGOs, farmers clubs and FPOs and getting them registered in cooperative mode for marketing and processing work.

Farmers of Bhatlani and Devirampur villages of Kotabagh block are very much encouraged after the application of Herbal Kunapajala in paddy and tomato. This has resulted in drastic reduction of application of fungicides and pesticides and insecticides. The Herbal Kunapajala-applied plants bore fruits which were more shiny and disease-free. Application of Herbal Kunapajala extended the fruiting and harvesting period of tomato thus producing more fruits from the crop. Kastkar Vikas Samiti also helped the farmers of the Kotabagh block by conducting frequent training programmes and demonstrations on the preparation and use of Herbal Kunapajala in different crops grown in the Kotabagh block.

Farmer Anand Mani Bhatt (Mobile: 7895875666), a very innovative farmer belonging to Alchauna block of Bheemtal of Nainital district, is doing organic cultivation of potato, cauliflower, tomato, pea and ginger at his farm by using Herbal Kunapajala. Sri Anand Mani Bhatt is very much satisfied and encouraged with the experience gained in pea and tomato crops after the use of Herbal Kunapajala. Plant height and number of branches in tomato as well as in pea were increased significantly. Mr Bhatt received training on the preparation and use of Herbal Kunapajala during a workshop organized at the headquarters of Asian Agri-History Foundation (AAHF) located at College of Agriculture, GB Pant University of Agriculture and Technology, Pantnagar during October 2019. He is recipient of Krishi Bhushan Award (2019), Government of Uttarakhand for his excellent agriculture practices.



Organic farmer Sri Pramod Gunawant (Mobile: 6398226224) is an enthusiastic organic farmer of Simrad village of Ramgarh block of Nainital district. He has created an example for other farmers in the area by preparing and using Herbal Kunapajala in different crops at his farm. With this, he obtained many-fold increases in peach and kiwi fruit plants at his farm. From his 8-year-old kiwi plant he obtained many-fold increase with use of Herbal Kunapajala. Its application in kiwi plant provided an excellent plant growth and flowering and fruiting and protected the plant from any diseases and insect-pests. Instead of the usual 10-12 kg of kiwi fruits that he and his father harvested from this plant past years he was able to harvest about 100 kg of healthy fruits in 2020. It should also be mentioned here that Sri Gunwant also had obtained similar many-fold yield increases from his peach trees in 2020 (Vrikshayurved farming News (2020) Vol .1 No. 1). In addition, Sri Gunwant has also been actively involved in conducting training programmes for the preparation of Herbal Kunapajala in Betalghat block, an organic block declared by the Uttarakhand government.



Anil Pandey (Mobile: 9411378462) is a progressive and innovative organic farmer of Haldachaur, district Nainital. He attended a two days' workshop on Vrikshayurveda, at headquarters of Asian Agri-History Foundation, GBPUAT, Pantnagar. He is using the technology of Herbal Kunapajala at his farm and gaining an extra ordinary experience of Herbal Kunapajala application in various field crops, fruits and vegetable crops in term of crop production and protection in his farm. He feels this to be a low-cost



organic farming technology for small and marginal farmers. He is a master trainer for organic farming and has trained 8000 farmers in Uttarakhand.

Raghubir Singh (Mobile: 9457103737), a 67-year-old farmer of village Naglapaulal of small town Mauja of block Shikohabad in district Firozabad, is a very enthusiastic Herbal Kunapajal farmer as he prepares it in large quantities and uses in all the different crops that he grows on his 6.5 bigha (1.1 acre) farm. These crops include pumpkin, colocasia, turmeric, bottle gourd, cucumber, green beans, groundnut, lemon, pomegranate and bel fruit (*Aegle marmelos*). He also prepares Vermicompost and uses at his farm. He had attended Vrikshayurveda workshop in Pantnagar in October 2019 and learnt the preparation and use of Herbal Kunapajala. Sri Raghubir Singh has participated in different vegetable and fruit exhibitions in Faizabad district and has displayed his organically produced vegetables and fruits with the use of Herbal Kunapajala. Thus, only in a short time, he has earned a good name for himself as an organic farmer in Firozabad district and made himself and his village a popular name in organic farming.



Pooran Singh Bora (Mobile: 9536445538), a progressive commercial farmer of Chauna village of district Almora has a slogan “Kunapajala Apnao Dharti



Bachao” (Save soils by using Kunapajala). He emphasizes that we need to protect our generations by protecting our soils by the use of Herbal Kunapajala. He further adds that the use of Herbal Kunapajala is the best way for protecting our fields and for increasing productivity of our crops. He used Herbal Kunapajala in his tomato crop and claims to have harvested double the yield with best quality tomato fruits.



DNPPCL FPO: Adding Value to Organic Products and to the Lives of rural Women in Garhwal Region of Uttarakhand.

(Courtesy: Dr Shweta Chaudhary and Bhumika Giri Goswami)

Devbhumi Natural Products Producers Company Limited (DNPPCL) is a farmer producers' organization (FPO) working in five districts namely: Chamoli, Rudrapur, Pauri Garhwal, Tehri Garhwal and Uttarkashi in Garhwal region. The main activities undertaken by the farm households are: sericulture, apiculture, spice cultivation and kidney bean (rajma) production by employing organic approach. Prior to formation of this FPO, Garhwal region being dominated by the hilly tracts and remote locations faced marketing constraints of their organic produce. To curb these constraints in 2014, DNPPCL FPO came with the idea of unifying the women farmers with the help of NABARD. It facilitated them with doorstep collection, storage, transportation, processing, value addition and branding of their organic produce. Presently, the FPO is working with 450 villages which constitute around 4500 women primary producers, who are producing on a commercial basis. The organic products of this FPO come under the brand name of Devbhumi and they have achieved global marketing platform. Presently the Devbhumi organic products are available on famous e-commerce sites like Amazon, Flipkart, Fab India, etc. This company achieved a



turnover of Rs. 17 lakhs in 2017-18 and the economic returns of the producers are boosted from Rs. 500-3000 per month to Rs.2000 to 5000 per month. During the COVID 19 situation, having advantage of organic products marketing, the FPO assured regular returns to its producers. So it is worth to say that the collective efforts of this FPO not just added value to the organic products but also to the livelihoods of rural women.

Contact: Devbhumi Natural Products Producers Company Ltd. Mobile: +91 965055995, Plot No. 15, Old SBI Lane, Mohabbewala Industrial Area, Dehradun, Uttarakhand. INDIA – 248110.

Research and Development

Research and development project on “Introduction and integration of Vrikshayurved based Nettle - Herbal Kunapajala” at GBPUAT, Pantnagar

(Courtesy: Dr. Sunita T Pandey, Executive Secretary, AAHF)

The College of Agriculture, Pantnagar has contributed immensely in transforming Indian agriculture, and is committed to take Vrikshayurveda based, time tested and time-honoured age old legacy of agriculture to the next level. In recent times, organic farming has gained momentum and people have started to prefer organic products. In light of the state of Uttarakhand heading towards organic farming, the Asian Agri-History Foundation (AAHF), with its new headquarters at GBPUA&T, Pantnagar, paid attention to help Uttarakhand state by training Uttarakhand farmers in Vrikshayurveda practices and for this purpose organized a training workshop on Vrikshayurveda for the small-holder farmers of Uttarakhand in October 2019. This was accompanied by training on the preparation and use of Herbal Kunapajala, a modified version of the original Kunapajala described in Vrikshayurveda book by Surapala. The encouraging results were that several farmers who had attended the workshop started preparing and using Herbal Kunapajala in different crops on their farms.

It was followed up by developing a collaborative, multi- location, multi institutional and multidisciplinary Vrikshayurveda- based research and development project on Nettle - Herbal Kunapajala which was submitted by Dr. Sunita T Pandey, Professor, Department of Agronomy to the Ministry of Environment, Forest and Climate Change which was sanctioned by the government and was assigned to the University for its R&D (Research and development) and validation activities.

The Stinging Nettle (Genus: *Urtica*) is an obnoxious weed, growing widely in nature in the hills of Uttarakhand. The project aims to test the application and usefulness of Nettle-based Herbal Kunapajala on various crops and popularize it among hill farmers of Uttarakhand, especially of Almora district.

The fully decomposed nutrients of Herbal Kunapajala are more readily available to plants and help in plant nutrition as well as plant protection. The performance of Vrikshayurveda-based nettle-based Herbal Kunapajala technology will be tested in various crops and crop rotations at NEB Crop Research Center, Horticulture Research Center, Floriculture Research Center and Vegetable Research Centre at GBPUA&T, Pantnagar. The effectiveness of Nettle-Herbal Kunapajala applications at various doses will be evaluated in different crops including chickpea, mustard, potato, and gladiolus. Furthermore, the effect of nettle-based Herbal Kunapajala would also be studied on soil biology, chemistry and soil microbiology. Awareness campaigns, trainings and demonstrations on the use of nettle-based Herbal Kunapajala are being conducted with the help of KVK scientists in various blocks of Almora district and would be extended to the rest of Uttarakhand in due course based on the initial results.



So far, the use of the original Herbal Kunapajala has been found very effective in different crops in different regions. It is expected that the nettle-based Herbal Kunapajala would also prove to be effective for use in improving crop growth and increasing productivity like the original Herbal Kunapajala which is now in use. The use of the nettle-based Herbal Kunapajala, if found effective, would also reduce input costs on chemical fertilizers and pesticides and make Uttarakhand farming profitable.

Effects of Kunapajala and Panchagavya on Nutrients Release, Crop Productivity and Soil Health

(Courtesy: RK Naresh and SS Dhaliwal; Mobile: 9760182606/ 8941067519; Asian Agri History 24 (2):147-161)

Vedic literatures such as Vrikshayurveda have clearly outlined systematized agricultural practices that recommended the use of Panchagavya (a mixture of the five products from cow in a specific ratio) and Kunapajala (decomposed products of fish or animal wastes in liquid form) to enhance the biological efficiency of soils, and thus of crop plants and the production of fruits and vegetables. In several field experiments, combination of both Panchagavya and Kunapajala showed best results in influencing the growth

parameters as well as yield of crops. Leaf chlorophyll content was also consistently higher by the application of two organic products and that ultimately reflected in enhanced yield of the crops. Kunapajala treatment was found more effective for inducing early flowering and enhancing fruiting period, and fruit size, fresh weight and shelf life of fruit, and seed weight compared to conventional application of NPK fertilizers. Analysis of nutritional content showed Kunapajala being superior to NPK fertilizers in terms of total solids, fiber content, lycopene, ascorbic acid, carotenoids, soluble proteins, total carbohydrates, and proline. The antioxidant property of tomato fruit was highest in the plants treated with Kunapajala. The liquid organic manures Panchagavya and Kunapajala have good potential as organic manures to improve the physical, chemical and biological properties of soil and enhance the soil fertility, crop productivity and also provide food grains free from the health hazards such as pesticide residues. Thus, Panchagavya and Kunapajala can play a major role in organic farming and sustainable agriculture through enhanced soil microbial population, oxidisable organic carbon, nitrogen, phosphate, and potash.

Contd. From Page 1....

Surapala (c. 1000 CE): Vaidya Surapala compiled a Sanskrit text titled **Vrikshayurveda**, which means the science of plant life. In ancient times, Vrikshayurveda was a repository of agricultural knowledge. Various chapters of this ancient book include information on garden construction, importance of plants, details of plantation near buildings, procurement of seeds and plantation material, testing, treatment, preparation of pits for planting, selection of land, methods of irrigation, nutrition, fertilizers, etc. He in his book Surapal described a unique liquid fertilizer-cum-plant protection material called Kunapajala, which was prepared from animal waste subjected to fermentation, and happens to be the first report of an organic fertilizer in the world. Further, important information is given about plant diseases, plant protection, construction of gardens, miracles related to agriculture and horticulture, use of plant species as indicators of crops and animal production and description of religious plants.



Sarangadhara (1283–1301 CE): Sarangadhara had compiled a verse called **Sarangadhara-Paddhati** which included **Upavanavinoda** (a text on arbori-horticulture). Upvanavinoda deals with the topics viz. benefits and losses from trees near the house, soil, planting of trees, sowing of seeds, pits, distance between trees, auspicious and inauspicious plants, irrigation (watering), garden construction, digging wells, digging of wells, kunap (liquid manure), miracle of plants (amazing plants), natural signs for growth of cereal crops, natural signs of animals and signs of reproduction of animals, etc.



Chakrapani Mishra (1577 CE): Chakrapani Mishra wrote **Vishvavallabha**, an eminent manuscript describing various aspects of agriculture keeping in mind the Mewar region. It is important that this ancient manuscript was written under the patronage of Shiromani Maharana Pratap. Vishvavallabha means Vishvapriya. That is why Chakrapani Mishra named this because the subject of plant life is dear to everyone. In this manuscript, information on groundwater detection, soil testing, plantation, water management, nutrition, disease and treatment, miracles of plant and seeds etc. in dry, semi-arid and moist areas and hills is given.



Book Entitled Bhartiya Krishi Ka Prachin Itihas (In Hindi) Released

A text book entitled **Bhartiya Krishi Ka Prachin Itihas**, Hindi translation by Dr. SK Khandelwal, Secretary, AAHF Rajasthan Chapter, Udaipur, and Dr. Devendra Jain, Member, AAHF Rajasthan Chapter, Udaipur working in the Department of Molecular Biology and Biotechnology, Rajasthan College of Agriculture, a constituent of Maharana Pratap University of Agriculture and Technology, Udaipur. The book was released by the Vice-Chancellor, Professor Narendra Singh Rathore on the occasion of 84th birth anniversary of Late Dr. Y.L. Nene, Founder Chairman of Asian Agri-History Foundation, on 24th November 2020. The book has been published through a collaborative mission of Asian Agri-History Foundation Rajasthan Chapter, Udaipur and Asian Agri-History Foundation, Pantnagar.



Attention

Please send your contributions to the Newsletter to

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