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Horticultural practices based on brihatsamhita

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Abstract

India is a nation having rich knowledge regarding its traditional methods of agriculture. Ancient Indian text such as Varahamihira's Brihatsamhita provides indigenous knowledge. It contains a chapter called 'Vrksayurveda' mainly deals with horticulture. It has given importance on gardening and water tanks. Regarding nutritional care, it has fully organic and time tested methods to deal with entire plant life. It has also described various grafting techniques. Vrksayurveda has also recommended planting distances for trees. Just as the human body plants are also affected by various diseases so treatment of these diseases of plants i.e. phytophology can be studied in Vrksayurveda following the knowledge of factors, symptoms of affected plant and treatment protocol. Treatment of seeds is highly essential to prevent infections, pest attacks and for quicker germination. Vrksayurveda describes various practices of sowing seeds, instant sprouting and fruting. In the presence study, various horticultural practices based on Brihatsamhita are discussed.

Keyword: Brihatsamhita, vrksayurveda, gardening, nutritional care, grafting, planting technique, phytopathology, seed treatment

Introduction

Today's Science seems to be the contribution of the western country only and we think that India's contribution to the development of modern science is almost nil, which is not true. Faith in country and its integrity has suffered a serious setback. Still more dangerous is the loss of faith in our civilization and culture. We, the citizens of this great country, should be made aware of the achievements of India in the different fields of science during the ancient period and relate it to the modern science.

Survival of living being depends on the harmonious functioning of bio-ecological factors where in the role of 'producer' is pivotal being the sustainable source of supply of nutrients. India is a nation having rich knowledge regarding its traditional methods of agriculture. Ancient Indian text such as Varahamihira's Brhatsamhita provides recommendation for the plant protection practices based on indigenous knowledge. Varahamihira was not only one of the greatest Indian astrologers but a man of varied talents with vast knowledge of different branches of science. Brhatsamhita contains a good deal of biological information. Brhatsamhita contains a chapter called 'Vrksayurveda'. Etymologically, this term is derived from the Sanskrit word Vrkisha¹ means trees and Ayur Veda means science of life. Hence, Vrksayurveda means science of plant life. Vrksayurveda mainly deals with Horticulture, a branch of Agriculture. The word 'Horticulture' is derived from two Latin words hortus means garden and cultura means culture. Hence, it is defined as the art and science of growing fruits, vegetable, herbs, nuts and ornamental plants in garden.

Contribution of Vrksayurveda to Horticulture can be studied under following heads: -

- (A) Gardening and building of water tanks
- (B) Nutritional care
- (C) Grafting
- (D) Planting techniques
- (E) Phyto-pathology
- (F) Seed treatment

(A) Gardening and building of water tanks

Man is inseparable from nature. The origin of garden is rooted in the human desire to be surrounded by plants. According to Varahamihira, the fundamental requirement for developing

any kind of garden is water. Both the tanks and the gardens are naturally beneficial.

Scientific Facts**Table 1:** Scientific Facts

Practices	Advantage
Soil and water conservation by gardening	Reduces wind velocity and intensity of sunlight
Checking of soil erosion by growing trees around the tank	Leads to soil and moisture conservation
Conservation of rainwater in tank	Used for irrigating the garden plants after rainy season
Recycling of nutrients	Tank excavation can be used as manure

(B) Nutritional care

Use of chemicals for plant growth has led to soil and water pollution. It has ultimately affected the quality of plants. In other hand Vrksayurveda has fully organic and time tested methods to deal with entire plant life.

The following trees should be planted before gardening: -

1. Sesamum (*Sesamum indicum*)
2. Arista (*Azadirachta indica*)
3. Asoka (*Saraca asoca*)
4. Punnaga (*Calophyllum inophyllum*)
5. Sirisa (*Albizia lebbek*)
6. Priyangu (*Callicarpa macrophylla*)

Scientific Facts

- In Varahamihira's Brhatsamhita growing of sesame to flowering stage and then incorporating it as green manure is recommended.
- Green leaf manures like crop residues legumes and neem enhances the nutrient content of soil.
- Crop rotating and intercropping were practiced to restore soil fertility.
- Composting practices is an ideal farming practices.

(C) Grafting

Grafting is a horticultural technique used to join parts from two or more plants so that they appear to grow as a single plant.

Grafting in Brihatsamhita can be studied under following sub-heads: -

- (1) Grafting technique
- (2) Grafting materials
- (3) Grafting according to season
- (4) Irrigation technique

(1) Grafting technique

- Inserting the cutting of a plant into the root of another, cut off from its trunk.
- Inserting the cutting of a tree into the stem of another.
- The junction of the two in both the cases was covered with a coating of mud and gomaya (cow dung).

**Fig 1:** Grafting**(2) Grafting materials**

- Gomaya (cow-dung)
- Madhu (honey)
- Go-grhita (clarified butter)
- Herbs like vidang, ushira, kamal
- Mud

(3) Grafting according to seasons**Table 2:** Plant Condition and Grafting according

	Grafting Season
Plants without branches	End of Winter (Feb-Mar)
Plant with developed branch	During Winter (Dec-Jan)
Plants with large developed branches	Autumn (Aug-Sept)

(4) Irrigation techniques**Table 3:** Irrigation Technique

Season	Technique
Summer	Watered both in the morning and evening everyday
Cold season	Watered on alternate day
Rainy	Irrigated whenever the soil becomes dry

(D) Planting techniques

Planting distance recommended for trees

Table 4: Planting distance recommended for trees

Planting Distance	Effect
20 cubits (9.14m)	Uthamam (best spacing)
16 cubits (7.31m)	Madhyamam (moderate)
12 cubits (5.48m)	Adhamam (below moderate)

Scientific Facts

- If it is more than prescribed limit they will be badly affected by wind.
- If the distance is less, then their roots interlocked and tortured, the yield from the trees will be very low.

(E) Phyto-pathology

Just as the human body is affected by different diseases, so also plants suffer from various diseases. So, these diseases of plants can be cured by application of proper drugs as prescribed in Vrksayurveda.

This can be studied under following sub-heads: -

- (a) Factors affecting plants
- (b) Symptoms of affected plants
- (c) Treatment

(a) Factors affecting plants

- Cold climate (low temperature)
- Wind (dryness)
- Sun (high temperature)

(b) Symptoms of affected plants

- The leaves become yellow (etiolated)

- Buds do not develop or their growth arrested
- Branches become dry and sap (rasa exudes)

**Fig 2:** Yellowish leaves**Fig 3:** Growth arrested buds**Fig 4:** Exudation of sap**(c) Treatment****Varahamihira prescribes****Table 5:** Varahamihira prescribes

Sl. No	Disease pattern	Treatment protocol	Application
1	Ulcer	Cleaning the ulcer area with knife Paste Sprinkling	The affected area is smeared with a paste prepared from vidanga, ghee and silt They should be sprinkled with water and milk
2	To check the pre-matured destruction of fruits	Irrigation	Should be irrigated with milk that has been cooled after being boiled with horse gram, black gram, green gram, sesamum and barley
3	To enhance the flowering and fruiting of trees, creepers and shrubs	Sprinkling	Should be sprinkled with a mixture of powder of goat and sheep dung (54 palas), sesamum powder (54 palas), wheat particles (16 palas), beef (100 palas) and water (256 palas)

(F) Seed Treatment

Treatment of seeds is highly essential to prevent infections, pest attacks and for quicker germination. This will further help to provide adequate nutritional supplements for healthy growth of plants. Treatment of seeds can be studied under following sub-heads: -

- General practice of sowing seeds
- Instant sprouting and fruiting

(a) General practice of sowing seeds

- Soaking them in milk for ten days
- Taking out daily with hand
- Smearing with ghee
- Rolling many times in cow dug
- Fumigating with the flesh of deer or hog
- Then the seeds were sown in soil which was already treated with sesamum crushed together with flesh and

hog's marrow

(b) Instant sprouting and fruiting

- Soak the seeds 100 times in a fruit paste of Ankola (*Alangium salvifolium*) or Sleshmantaka (*Cordia dichotoma*) or in its oil
- Sow in a soil mixed with hail (frozen rainwater)

Conclusion

From the above detailed discussion some light is thrown on the awareness of our ancient four fathers about the agricultural practices. The ignorance of our ancient text is responsible for the degeneration of agriculture practices. With the help of Brihatsamhita and modern methods of horticulture we cannot only scientifically prove the sayings of the text but we could also establish some noble modified methods for the horticultural systems. The proper interpretation and

availability of Vrksayurveda can also play an important role to build the eco-friendly environment.

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