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# TECHNOLOGIES FOR DOUBLING FARMERS' INCOME

(Proceedings of 20th Indian Agricultural Scientists & Farmers' Congress on "Recent Need Based and Eco-Friendly Technologies for Doubling Farmers' Income" during 17-18 February 2018, Allahabad)



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**Dr. B.K. Dwivedi**  
**Dr. S.D. Mishra**  
**Dr. Ashutosh Tripathi**





**A view of 20th Indian Agricultural Scientists & Farmers' Congress  
17-18 February, Allahabad**



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Website : <http://bioved.co.in/>  
<http://biovedjournal.org/>**

**ISBN 81-85722-42-0**

**© Bioved Research Society, 2018**

**Published by : Bioved Research Society, Allahabad  
Composed by : Dharmendra Upadhyay, Bioved Research &  
Communication Centre, Allahabad**

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## **Ayurveda : An alternate switch over to double the income of farmers**

**Seema Rai**

Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

Indian farmers are facing one of the worst economic conditions experienced in last few years. It is tough for the urban population to develop an understanding to the problems faced by the farming community. For the urban population, it becomes an issue only during price hike. Although, the government may be trying its best, but an extra effort and enough support should be provided to the farmers, which would go a long way in making India a self-reliant country in food crops.

India is the largest agricultural powerhouse worldwide as well as a leading producer of spices, pulses, and milk. The largest area our country is used to cultivate cotton, wheat, and rice. Agricultural held almost 75% share in India's GDP a few decades ago. Unfortunately to the present time, the share has gone down around 14%. However, agriculture still continues to be the source of livelihood for approximately 50% of the working population and three-quarters of which is based in the rural parts of India.

In a nutshell it may be stated that agriculture is vast industry and either directly or indirectly, it has an impact on every citizen of the country. Similar to the other sector, agriculture too has its own set of challenges, some of which are very critical and obstructing. Indian agriculture is plagued by several problems; some of them are natural and some others are manmade. Being a member of the farmer's family of a remote village I observed and experienced and have seen that how the government help is divided between government officials and distributing agency having little scope to the meaning of any complain, if made because all are the active participants.

The time of mid- and late-20th century was a revolutionary period in agricultural society lead to a dramatic change the field of agriculture. During this time frame the productivity of global agriculture increased extremely as a result of new advancement regarding use of new chemical fertilizers and synthetic herbicides and pesticides. The chemical fertilizers made it possible to supply crops with extra nutrients and, therefore, increased yields as well. The newly developed synthetic herbicides and pesticides controlled weeds, deterred and / or killed insects, and prevented diseases and therefore contributed a lot in higher productivity. These several benefits however have also given birth of several issues consequently associated with its adverse effect on environment and society. These adverse results were raised due to lack of proper training to the farmers regarding the use the proper and specific herbicide, weedicides and pesticides over the agricultural land and to the plants. Therefore, use of hybrid seeds, chemical fertilizer synthetic herbicides and pesticides dramatically influenced the environment causing significant increase in pollution soil erosion. The material added to soil and plants polluted the soil and water system around the field. The chemical spread in the water was further passed to the living system of different individual via trophic level of the food chain and hence increased the risk to the animal's health including human being. Let's take a look at some of the major problems that India faces in relation to agriculture and their possible solutions.

### **1. Use of high yield hybrid Seeds**

The basic and critical input for attaining higher crop yields and sustained growth in agricultural production is the seed. Unfortunately, good quality of seeds are generally out of reach of small and marginal farmers due to their exorbitant prices. Nonetheless these hybrid seeds have a very strong draw back as they were used only once and again reproduced seed from their own plant were not found as productive as they were during the first use. The traditional seed were far better performance ecofriendly to the environment than these hybrid seeds. This was the first strong reason which had gradually impacted adversely to the poor farmers.

### **2. Increase rate of mechanization/ modernization**

Mostly simple and conventional tools and implements like wooden plough, sickle, etcare used in the agricultural operations in larger parts by human hand instead of the large scale mechanization of agriculture in some parts



of the country. Very less or scanty use of machines is made in ploughing, sowing, irrigating, thinning and pruning, weeding, harvesting threshing and transporting the crops. Therefore, there is a need to mechanize the agricultural operations in order to avoid the wastage of man power as labour force and hence farming can be made convenient and efficient.

### **3. Dependency upon the use of synthetic / chemical fertilizers and biocides**

Pests, germs and weeds cause heavy loss to crops which amounted to about one third of the total field produce at the time of Independence. Biocides (pesticides, herbicides and weedicides) are used to save the crops and to avoid losses. The increased use of these inputs caused a gradually decrease in fertility of soil and ultimately led to soil sterility and hence made the farmer to be dependent on the use of synthetic fertilizer.

### **4. Agricultural Marketing**

Agricultural marketing still continues to be in a bad shape in rural India. In the absence of sound marketing facilities, the farmers have to depend upon local traders and middlemen for the disposal of their farm produce which is sold at a throw-away price. Further, in the absence of an organized marketing structure, private traders and middlemen dominate the marketing and trading of agricultural produce. The remuneration of the services provided by the middlemen increases the load on the consumer, although the producer does not derive similar benefit.

## **Proposed Strategy for Improving Farmers' Income**

### **Awareness towards production of Medicinal plants by Farmers**

Since ancient times, many naturally available traditionally herbal medicine with least or no side effect and are used for the treatment of various health issues. *Ayurvedic medicine* is one of the world's oldest medical systems. In India, Ayurveda has been initiated more than 3,000 years ago and till date remains one of the country's oldest and traditional health care systems. It conceptualizes to promote the use of herbal compounds, special diets, and other unique health practices. Government of India and other institutes throughout the world support clinical and laboratory research on Ayurvedic medicine, within the context of the Eastern belief system. But Ayurvedic medicine isn't widely studied as part of conventional (Western) medicine.

Indian System of Medicine constitute 7843 licensed pharmacies among which 857 belong to homeopath and a number of unlicensed small scale processing units are engaged in the manufacturing of the medicines to meet the requirement of 4.6 lakh registered practitioners. 857 of Homeopathy and a number of unlicensed small scale processing units engaged in the manufacture of the medicines to meet the requirement of 4.6 lakh registered practitioners. These pharmacies range from large Indian drug houses like Baidyanath, Dabur, Zandu, Himalaya Drugs and many others employing modern and / or /sophisticated equipments and methods for production of drugs on mass scale to small ones dealing specifically with plants and plant products. Various pharmacies out of which are attached to Ayurvedic institutes and hospitals and Vaidyas of villages. Unfortunately, data regarding the participation of both licensed and unlicensed firms in the medicinal plants raw material trade, and the extent of their demand for the raw materials are not readily available. However, extensive and systematic surveys are required to generate data and information on this crucial aspect for useful resource attempt to assess the demand and supply position.

Requirement of individual pharmacies varies depending upon the total number and quantity of high and low value medicinal herbs used by them. Various surveys conducted during past, assessed that demand for 10 major states it works out to 33000 tons per State per year totaling to approximately 3.5 lakh tons for the country. Nonetheless, requirement of individual pharmacy estimated approximately to be 1292 tons per annum. On this basis, it may be assumed that existing 100 pharmacies demand for crude drugs is about to 1.29 lakh tons per year which after combining two source reports approximately worked out about 2.4 lakh tons of crude drugs per annum. The survey indicates that there is progressive increase in demand of crude raw material of medicinal plant from



Ayurvedic companies.

Medicinal and aromatic plants constitute a major segment of the flora, which provides raw materials for use in the pharmaceutical, cosmetics, and drug industries. The indigenous system of medicines, developed in India for centuries, make use of many medical herbs. These systems include Ayurveda, Siddha, Unani, and many other indigenous practices. More than 9,000 native plants have established and recorded curative properties and about 1500 species are known for their aroma and flavour. In one of the studies by the World Health Organisation, it is estimated that 80 per cent of the population of developing countries relies on traditional plant based medicines for their health requirements (WHO, 1991). Even in many of the modern medicines, the basic composition is derived from medicinal plants and these have become acceptable medicines for many reasons that include easy availability, least side effects, low prices, environmental countries, having 40 percent of the global biodiversity and availability of rare species.

The Ministry of Environment and Forest, Government of India has identified and documented over 9,500 species of medicinal plants that are significant for the pharmaceutical industry. Of these, 2000 to 2300 species are used in traditional medicines while at least 150 species are used commercially on a large scale (EXIM Bank, 1997). The fact that derivatives of medicinal and aromatic plants are non-narcotic have no ill-effects and constitute the natural base for treatments has resulted in an increase in demand for these plants in developing and non-developed countries. Due to this rising international demand, many important medicinal plant species are becoming scarce and some are facing the prospect of extinction. Therefore, it is important to conserve the extensively traded medicinal plants in its natural environment or cultivate it in favorable environments. As compared to the traditional crops, the cultivation of medicinal crops has many advantages. These include:

1. Medicinal crops provide better returns than traditional crops
2. Have very high domestic and export demand
3. Fetch better prices in the market
4. Could be stored for a long time, and sold at a time when better prices prevail in the market
5. Are the largely drought tolerant, and not easily grazed by animals
6. Have low incidence of pest attacks and diseases
7. Require minimum resources, therefore the cost of cultivation is lower compared to the traditional crops
8. Could be raised as inter-crops along with traditional crops, and also on degraded lands

Given these advantages the cultivation of medicinal crops has been picking up in some regions. However, the spread is not so large to meet the demand of the industry. Owing to short supply, prices of some medicinal crops have increased substantially in the recent past. What is also of great concern is that exploitation of some of the species has threatened their extinction.

#### **Importance of medicinal plants for farmer**

The Indian farmer is presently in a very difficult situation. The farmer is constrained by the shrinking net income flow due to the increasing cost of cultivation and un-certainty in prices. Largely, farmers have not diversified from traditional crops. Production costs of traditional crops are now becoming costly and the market system is poor. These factors have forced the farmers to shift towards other crops that have the potential for better returns compared to the traditional crops. In this backdrop, the cultivation of medicinal crops are less risky in terms of the incidence of pest attacks, diseases and price fluctuations, and has potential returns. And this significance is further strengthened by the fact that these crops can be grown in degraded and marginal soils, or raised as inter crops in plantation crops like are coconut etc. with less difficulty. The trade demand for these crops are also increasing with the increased interest in western consumers towards eastern medicinal systems.

In the world trade market the demand for medicinal plants has been increasing in recent years. One of the interesting features of this trade is that the direction of trade is from developing countries to the developed countries.



That has a positive income transfer effect. Increasing global interest in medicinal plants has created a sustainable demand. Despite the vast potential for exploiting the market for medicinal, aromatic and exotic plants this sector is still in the nascent stage among many promising country. Medicinal plants account for about 70 percent by value of the total raw materials procured by Ayurvedic Pharmacies. Hence, based on the growing demand for herb-based medicines, both in the domestic and international markets, it can be inferred that the demand for the raw material, i.e., medicinal plants will grow correspondingly. Due to the increased demand for medicinal plants, the rate of extraction from the natural (wild) sources is higher than that of their regeneration. This can be traced to indiscriminate /unregulated harvesting practices being followed with no concern for the sustainability of the resource. This obviously leads to a supply crunch and at the same time it is necessary to ensure that the farmer is keep informed about the information available on medicinal plants by organizing awareness camps and educating them on the very same subject.

