

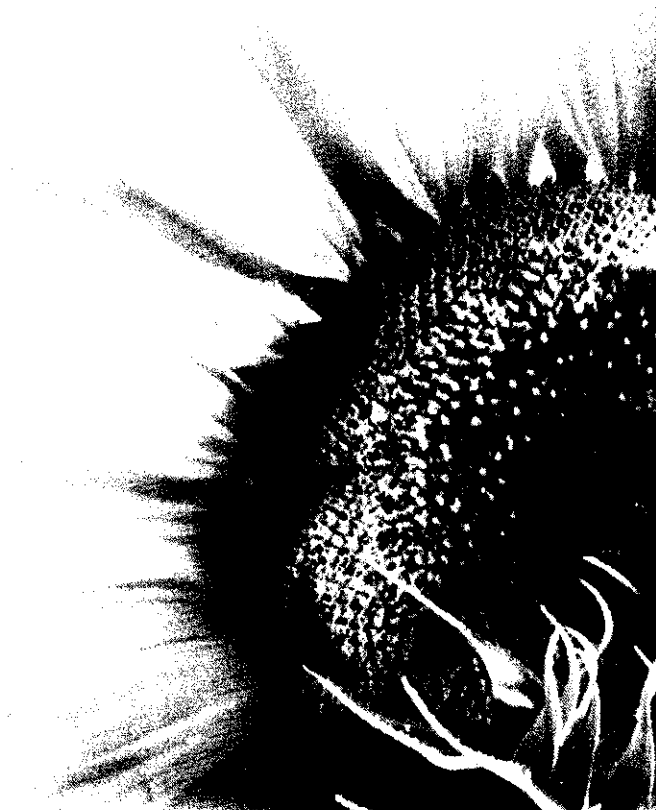
## *Annual Report 1998-1999*



NOVARTIS

Novartis India Limited is an affiliate of Novartis AG, a global leader in the Life Sciences, committed to improving health and well-being through innovative products and services. Novartis India Limited has a countrywide presence in Healthcare and Agribusiness through its Pharmaceuticals, CIBA® Vision, Crop Protection, Seeds and Animal Health Sectors.

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## India a country of many contradictions

India, the seventh largest country in size and the second most populous in the world, continues to be a mystery and in many ways an enigma to many. Our country is full of contradictions and contrasts, where poverty and riches, ignorance and a wealth of knowledge co-exist side by side.

### Feeding the millions

We have a population of 980 million people, which is projected to reach the 1310 million mark by year 2020. Today, with buffer stocks of around 20 million tonnes of foodgrains, India is proud to be self-sufficient in food, but feeding the growing mammoth population will pose an immense challenge to our economy.

A majority of the Indian population lives in villages. Agriculture, the mainstay of the economy, accounts for 25% of our Gross Domestic Product. 43% of our land area is used for agricultural purposes and we have the highest ratio of arable land area to total geographical area in the world.

Being a large country in terms of sheer size, the country is fortunate to enjoy a variety of climatic conditions lending itself to the cultivation of a variety of cash crops and food grains. The performance of the agricultural sector depends on several factors ranging from weather conditions to optimal use of various inputs such as irrigation, fertilizers, seeds, crop protection agents, extent of mechanization etc. The Indian monsoon plays an important role, as much of the cropped area does not have proper irrigation facilities.



## Seeds of future



Novartis India Limited has contributed to Indian agriculture through its high quality crop protection chemicals and hybrid variety of seeds.

Seed is the first agricultural input. All other inputs, viz. fertilisers, crop protection chemicals, irrigation and agricultural machinery help the seed realise its full potential. The Green Revolution was possible primarily on account of the new hybrid and high yielding varieties of seeds adequately supported by other inputs.

Crop protection chemicals play an indirect role in allowing land to be preserved in its natural habitat and preserving the environment. Land is a finite resource and although the world population has more than doubled in the last forty years, arable land remains more or less constant. Crop protection products contribute towards optimizing farmers' return on investment, help maintain food prices at affordable limits and improve productivity per hectare.

Novartis contributes towards this effort through the variety of seeds it produces and markets in the country. In the field crops these hybrids include cotton, maize, sunflower, bajra, jowar and castor. In the area of vegetables it has hybrids in tomato, cabbage, cauliflower, capsicum, chilli, bhendi, brinjal, watermelon, melon, gawar, cowpea and sweet corn.

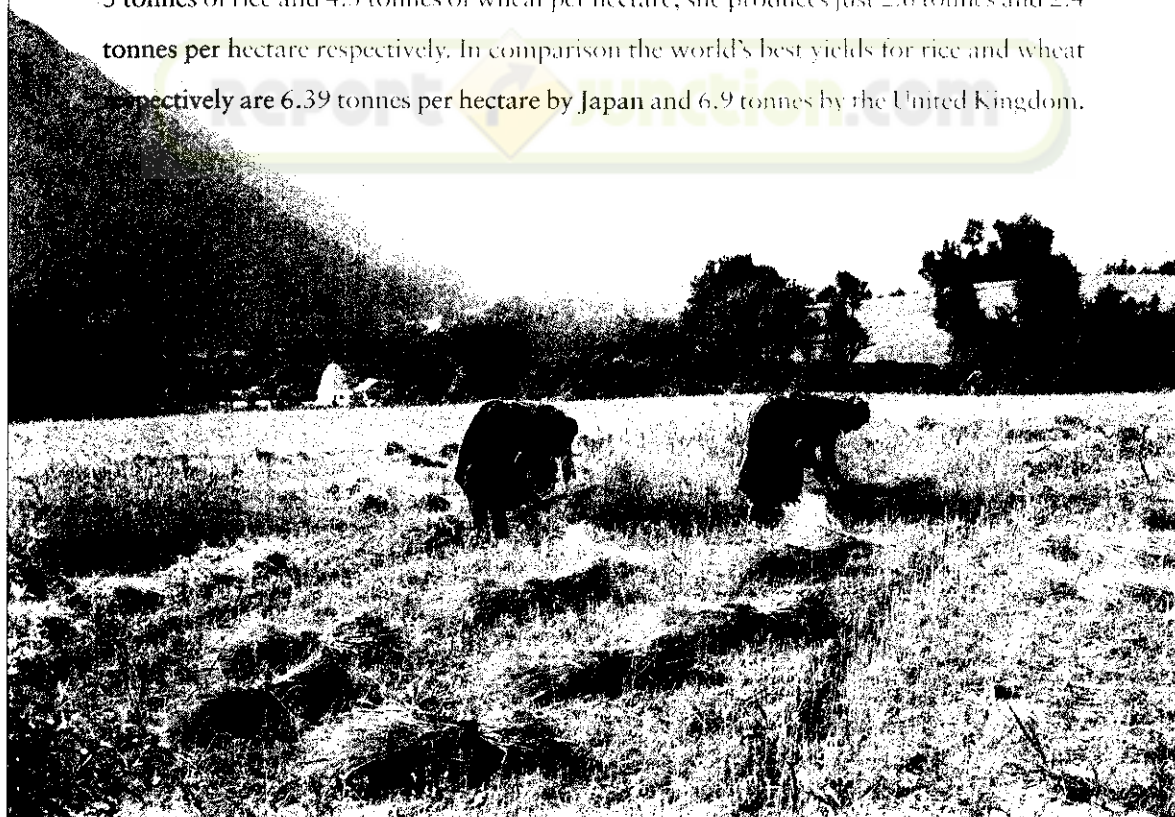
Over the past few years, our company has helped the Indian farmer to solve specific problems viz. the virus in tomato and chilli through its hybrids Avinash 2 and Roshni respectively, bursting in cabbage through Quisto, curd quality through cauliflower Serrano, fruit quality in capsicum through Indra and Lario and dependability in cotton through Sandocot 35 and Dhaval 2. We hope to add other crops to this list.

## Protecting our crops

Though India has vast tracts of land under cultivation, it has only 45 million hectares under irrigation. 30% of the total net sown area of 141 million hectares is under rice, 17% under wheat, 16% under pulses, 11% under oilseeds, 10% under millets, 6% under cotton and the balance 10% is under various other crops. Yields are low primarily because of poor quality and insufficient inputs.

Estimates show that every year between 20 to 30 per cent of crops are lost to pest and disease. Pests can wipe out the livelihoods of the small farmer. Crop protection products play an important role in directly reducing crop damage and yield losses from pests, diseases and weeds. They also contribute significantly to safeguarding quality during storage and transport thus helping preserve the quality of both food and animal feeds.

India is among the lowest consumers of crop protection chemicals in terms of kgs used per hectare as compared to the developed world where yields are high. While India uses 0.47 kg of crop protection chemicals per hectare, the United Kingdom uses 2 kg and Japan 10 kg. Though India has great potential the average yield is low. With a potential to produce 0.7 tonnes cotton per hectare, India produces only 0.3 tonnes as compared to the world's best of 1.5 tonnes by Australia. Similarly, as against the potential to produce 5 tonnes of rice and 4.5 tonnes of wheat per hectare, she produces just 2.6 tonnes and 2.4 tonnes per hectare respectively. In comparison the world's best yields for rice and wheat respectively are 6.39 tonnes per hectare by Japan and 6.9 tonnes by the United Kingdom.



Novartis India contributes towards protecting crops and hence increasing yield through its products. Our company is largely present in insect, disease and weed control with a small but growing representation in seed treatment. Cotton, an important cash crop in India, can truly be called a pests' crop. Its micro climate favours pest development especially the bollworm. The larvae damages buds, squares, flowers and bolls. Judicious use of crop protection chemicals permits build-up of beneficial insects while at the same time controlling and destroying the bollworm. Our company opened new horizons to the cotton farmer in India by introducing Profenofos, an organophosphate insecticide, to control bollworm. It is one of the largest selling products on cotton. Curacron® 50 EC and Polytrin® C 44 (a mixture of profenofos and cypermethrin) are ideal for bollworm management in cotton and to control other lepidopterous pests. Nuvan®, a dual-action pesticide, is valuable as a clean-up spray in the event of heavy pest infestation because of its vapour action. Vertimec™, an insecticide cum acaricide controls mites in floriculture. Our company also has a range of fungicides. Among them Ridomil® MZ 72 WP a speciality systemic fungicide helps control downy mildews and late blight diseases of many agricultural and horticultural crops. Tilt™ 25 EC a broad spectrum systemic fungicide for cereals is effective against powdery mildew, rusts and leaf spots. Topas™ 10% EC has protective and curative properties for the control of apple scab, powdery mildews and rusts of fruits, vegetables, field crops and ornamental plants. Our company recommends the fungicide Thiovit® for its use on apples, grapes, groundnut, chillies, mangoes and tea. We also have in our range Apron® 35 WS, a seed dressing fungicide recommended for the control of downy mildew in pearl millet, maize, sorghum and sunflower.

Among our well accepted herbicides are Rifit®, for the control of annual grasses, sedges, Dual® 50 EC useful against annual grasses and sedges in soyabean and Topik® 15 WP, a speciality herbicide for control of resistant phalaris minor, a menace for the wheat grower of Northern India.



Animal husbandry and dairy farming help supplement the family income of people living in rural India, particularly that of small farmers and labourers.

Our company has several products in this sector notably Fasinex<sup>®</sup>, Ektomin<sup>®</sup>, Endex<sup>®</sup>, and Lutalyse<sup>®</sup>, catering to large animals including cattle, sheep and goats. One of a kind, Fasinex<sup>®</sup> is an anti-fluke preparation that can be used effectively for all stages of liver flukes. While Ektomin<sup>®</sup> is the company's most effective ecto-parasiticide for large animals, Endex<sup>®</sup> is a broad spectrum endo-parasiticide. Our company markets Lutalyse<sup>®</sup>, a postaglandine preparation to synchronise heat in large animals. Lutalyse is a product of Pharmacia Upjohn. The product helps the farmer plan a calf a year. Vertimast<sup>®</sup> is a proven 'one shot' treatment for udder infection in lactating cows and buffaloes.



According to a 1997 census, India has about 200 million cattle, 77 million buffaloes, 46 million sheep, 110 million goats, 11 million pigs, and 748 million poultry birds.

## Supplementing agricultural income

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Our company also has several products for the poultry farmer. Larvadex<sup>®</sup>, an insect growth regulator, has proved effective in controlling the housefly menace in poultry farms. Among our other products are Tiamutin<sup>®</sup>, an anti-mycoplasma preventive and Cosumix<sup>®</sup> Plus, effective against E.coli. A strategic alliance with Probiotics International Limited, U.K. allows us to market Protexin<sup>™</sup>, a combination of naturally occurring bacteria and yeast culture. Protexin<sup>™</sup> helps eliminate the pathogenic bacteria in poultry.