CHEMICAL CONTROL OF PLANT PESTS AND DISEASES IN TRINIDAD.

INTRODUCTION.

Shortage of food is recognised as one of the gravest problems facing the world today. The rapidly increasing world population, 200 million or 10% in the last 10 years, together with the devastation and dislocation resulting from the recent world war, means that more than half the world's population is living below a reasonable standard of nutrition, as is shown by the survey carried out by the F.A.O. in 1947. This places an immense burden on the food producing areas of the world.

The area of cultivable land is limited, and while some few areas still remain to be brought into production and efforts are now being made in that direction, they are generally regions of low productivity or, for climatic and geographical reasons, those requiring great effort and capital expenditure. It means therefore, that if the general standard of living is to be raised to a reasonable level, and maintained, every effort must be made to produce greater and better crops from the land already under cultivation.

Good husbandry is naturally always the first and most important factor in the production of good crops, but modern conditions, necessitating the increasing use of intensive methods and of monoculture, create conditions favourable for the establishment of large populations of insect pests and facilitate the spread of diseases. The value of the losses occasioned by these pests and diseases both in terms of money and human food runs into enormous

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figures, according to the F.A.O. "the loss of bread grains and rice alone being estimated at 33 million tons per annum". The reduction and control of these losses is therefore a vital part of agricultural production today.

The first line of defence is the employment of cultural methods of control. A very great deal can be achieved by the use of clean seed and planting material, the recognition and eradication of alternative hosts, the rotation of crops, and in some cases, the alteration of planting and harvesting dates, by the use of suitable varieties, so breaking the life cycle of the pest. These and other methods are within the power of all classes of cultivators since they involve no capital outlay, and they should be regarded as part of ordinary good husbandry.

Much has been, and is being done also by the selection and breeding of crop varieties resistant or immune to the attacks of pests and diseases. Again, biological control, by the discovery, breeding up and release of suitable parasites and predators is an ideal method. However these are long term measures involving considerable time and expenditure and, in the case of the latter, largely problematical, the number of successes to date being relatively few.

Chemical control methods, the direct destruction of the pest, or prevention of attack by means of poisons or repellants, are therefore necessary and have to be used until the discovery of successful cultural or biological measures, and as a supplement to them.

The use of chemicals is now a well established practice in the agriculture of temperate regions where intensive methods of cultivation have long been used. Indeed, in some sections of the industry, such as fruit

growing and market gardening, it would be impossible to maintain production or provide the high quality products demanded by the public, without complicated and extensive spraying and dusting operations.

As a consequence, a highly developed industry has been built up in these countries, for the production of insecticides and fungicides and of spraying and dusting equipment, together with organisations employing trained personnel and special equipment which offer a complete service to growers. Tremendous impetus was given this industry by the War and the conditions prevailing since, resulting in the development of new techniques and products, outstanding amongst these being the new synthetic insecticides such as DDT, BHC, etc. The benefits of these new developments are now being extended to all classes of producers, and in a rapidly increasing degree, to the field of tropical agriculture.

In tropical regions, production is generally on an extensive system and the use of chemicals is largely restricted to capitalist enterprises and estates growing export crops such as sugarcane, coffee, tea, cotton, citrus etc. This has been due to a variety of reasons, mainly economic and cultural, but also to the especial problems imposed by climatic and geographical conditions.

However, the great majority of producers in these areas are small holders and peasants cultivating less than 10 acres and generally employing primitive methods and implements. Consequently, they are living largely at subsistence level and their cash incomes, if any, are very limited, but it is mainly from them that the increased production must come. Chemicals and equipment are expensive and have to be imported and

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consequently their use can generally only be justified with crops yielding a high cash income. The margin of profit on many tropical crops is small, particularly under extensive or primitive conditions of production, so that the great majority of these small producers are unable to make use of such methods of protection even where they may have the knowledge and ability to do so.

In most tropical countries efforts are being made to raise the standard and level of production through the work of Departments of Agriculture, Agricultural Societies, Growers Co-operatives, etc., in introducing better methods of cultivation, implements, crop varieties and improved marketing and purchasing of supplies. As by these means production intensifies and increases, and it must or starvation will result for many, so will the need for scientific crop protection increase, and the use of chemicals become a necessary part of production. Much still remains to be done however before that day is reached.