Recent rural radio talks.

Rose McAleer

E. H. Rawson

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Points on Submitting Plant Specimens for Disease Identification

By Miss Rose McAleer, B.Sc., Plant Pathologist

Most farmers, orchardists and gardeners are only too well aware of the heavy losses caused every year by various plant diseases. It is perhaps not so widely known that the Plant Pathology Branch of the Department of Agriculture offers a free service in the identification of these diseases and gives free advice on prevention and treatment.

Every day, the Department's plant pathologists receive specimens of diseased plants with requests for advice on the cause of the trouble and the types of treatment to be applied.

Sometimes identification is a simple matter. The symptoms are obvious at a glance and there are no complications. In other cases, a laboratory examination is needed to pinpoint the cause of the trouble.

The easily recognisable symptoms vary quite a lot. On leaves we often encounter spotting, yellow mottling, brown scorching around the margins, curling, streaking or mildew-like growths. Stems are often seen with dark streaks or spots; and splits or cankers on limbs of trees are common. Sometimes the whole plant may be stunted, show wilting, die-back of tips or whole branches, or be generally unthrifty. Stunting, wilting, die-back and unthriffiness are often manifestations of trouble in other parts of the plant.

When submitting specimens be careful to send in material that will help to identify the trouble.

If a plant appears quite healthy, apart from some spotting on the leaves, an unusual growth on the stem and leaves, or perhaps some type of streaking or scorching, it is usually sufficient to submit representative samples of the affected parts. Frequently, however, the only symptom may be a wilting of the foliage or a general unthriftness, the cause of which is not obvious. Wherever possible in such cases submit the whole plant, roots and all. For example, a tomato plant affected with Fusarium wilt, or one with its roots badly affected with eelworm, becomes unthrifty and shows wilting. These diseases cannot be identified from the leaves, for although the leaves show some symptoms the actual cause of the trouble lies in the stem or roots and only an examination of these portions of the plant will give a reliable clue to the cause of the trouble. The remedy for wilt, of course, is vastly different from the remedy for eelworm.

Wherever possible, try to select a range of specimens illustrating the disease from the early to the advanced stages. When an almost dead plant is submitted, the real symptoms are very difficult to see, whereas if we examine plants at earlier stages of the disease identification is simplified. Sick plants, like sick animals or human beings, are liable to contract secondary disease which, in some cases, may obscure or complicate the original ailment.
Another important point is the method of packing specimens for transport. This depends largely on the nature of the specimen and the time it takes on its journey. Send freshly-picked specimens, first washing the earth from the roots as it is not required and often soils and damages the leaves thus hiding the symptoms. Don't pack fruit in air-tight tins—they'll probably go mouldy before arrival—it's better to wrap each separate fruit in newspaper and then to pack them in a cardboard box with a few holes in it. Tomato plants, wheat plants and similar specimens probably travel best if placed between sheets of newspaper and kept rigid with cardboard. Post specimens early in the week, as they may deteriorate if they arrive during the weekend.

In conclusion, always send a covering letter giving the names of the plants affected—specimens are often difficult to identify on arrival in Perth. Many diseases are specific to certain plants and a knowledge of the varieties affected often makes disease identification easier.

Details of any manures or fertilisers used, and of any sprays or dusts applied should be given—also any information concerning watering, particularly the salt content of the water used.

THE GRADING OF FRUIT AND VEGETABLES

By E. H. RAWSON, Fruit Inspector

When the housewife goes to buy fruit and vegetables, her choice is influenced in the first place, by the appearance of the produce offered for sale. Soundness, size, colour and general appearance—taken in conjunction with the price—are the main points which influence her buying. She will see different grades of fruit and vegetables at different prices and will make her purchase according to her taste and the state of the household budget.

The grading of produce, according to quality, is an important feature of commercial fruit and vegetable production. It is part of a system designed to protect the grower, the wholesaler, retailer and the consumer alike.

Good grading—which might briefly be described as sorting into separate lines according to size, appearance and quality—can make a tremendous difference to the price which a grower receives for his crop.

Bad grading can nullify much of the work and expense put into the growing of the crop.

If the grower really wishes to produce fruit of the best quality, grading should begin in the orchard during the growing season. When they are large enough, malformed and blemished fruits should be thinned out, thus helping the balance of the fruit to improve in size and quality, and at the same time reducing the work of sorting during the harvesting period. Grading should be continued during the picking season to remove badly sunburnt fruits and others showing defects which have developed since thinning. This saves valuable time and space in the packing shed.

Where it has been installed in the larger packing sheds, modern machinery has facilitated grading to a large extent, but grading of fruit and vegetables is a job that the machine cannot do alone.

In Western Australia, apples, pears, oranges, lemons grapefruit, bananas, potatoes and onions are graded according to regulations that are enforced by trained inspectors. This promotes confidence, and the grades provide a sound basis for trading on both home and export markets.

Apart from the grading by regulation in the case of the fruits and vegetables named, there has grown up over the years a very high standard of voluntary grading in other produce offered for sale as the Metropolitan Markets. This has come about naturally, by competitive buying and keen marketing by certain growers—and visitors to this State invariably comment favourably on the quality of the produce offered for sale and the manner in which it is graded.

The importance of grading to both grower and consumer might be illustrated by a reference to the new season's oranges that made their appearance on the market towards the end of April.
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<table>
<thead>
<tr>
<th>Product Name</th>
<th>Use</th>
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<tbody>
<tr>
<td>LANTOX T.M.T.D.</td>
<td>Stone Fruit</td>
</tr>
<tr>
<td>ESSO FUNGICIDE - 406</td>
<td>Apples and Pears</td>
</tr>
<tr>
<td>VITOSPOR ZX-80 (Ziram)</td>
<td>Vines</td>
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<tr>
<td>DITHANE</td>
<td>General Purpose Zineb Fungicide</td>
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<td>KOPI</td>
<td>General Purpose Copper Fungicide</td>
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The grading regulations for citrus fruit, stipulate that the fruit must not only comply with certain standards concerning size, colour, amount of blemish and soundness—it must also have an adequate sugar content—or in other words, have achieved a certain stage of ripeness.

At that time of the year, the market is usually bare of oranges and high prices are paid for early navels. Oranges do not ripen after picking and, although treatment with ethylene gas can give immature oranges an attractive colour, it cannot make them sweeter.

Each year, inspectors mark down to "Inferior" grade, many cases of oranges which are satisfactory except in one respect. They are immature and therefore sour, and it is generally felt that the industry suffers through the sale of these sour oranges.

Early in the season, tests for acidity can be applied at the Market Inspector's office, suspected lines are tested and—if they don't measure up to the required standards—they are de-graded.

Good honest grading pays off in better prices for fruit and vegetables, and growers should realise that a buyer bases his price not on the best fruit in the case, but on the worst, thereby safeguarding himself against the quantity of inferior fruits that may be in the case. I suggest that it would be to the interests of growers to put in a few hours at the markets. See what you have to compete against—compare your produce with the other fellow's—and I think you'll agree with me when I say that good grading pays dividends.