

PC 17

Glasshouse lettuce:
Use of mildew resistant
varieties during autumn
and winter

PC/17

(New Project) Glasshouse Lettuce. Varieties resistant to downy mildew.

Project Co-ordinator: BB Sparkes
Project Leader : VM Criddle
Location : Growers' holding in South-West Lancashire
Start Date : October 1987

Introduction

The advent of the fungicide metalaxyl ('Ridomil' and latterly 'Fubol') gave the glasshouse lettuce grower a very powerful weapon with which to combat lettuce downy mildew. Indeed, the disease was rarely seen on crops which were sprayed with metalaxyl. The evolution of a race of the fungus which was very resistant to metalaxyl was a major blow to the glasshouse lettuce grower, but since that time a strategy of control, using mildew resistant cultivars and fungicidal sprays (including 'Fubol') has been developed.

Cultivars containing the so-called R11 gene give protection from the metalaxyl resistant race of the fungus. Metalaxyl ('Fubol') is used to provide protection from other races.

Growers using R11 cultivars are concerned that the performance of these cultivars may not be so good as the previously used non-R11

cultivars. In addition recent reports from Holland confirm the occurrence of a new strain of metalaxyl resistant mildew which can overcome the R11 resistance gene. This new strain can, however, be controlled by the R6 or R16 resistance gene.

Objective

To assess the performance of a number of new lettuce cultivars containing R11, R11 plus R6, or R16 genes under commercial conditions in Lancashire.

Description of the Work

A fully replicated trial of promising new varieties has been carried out on a commercial holding in Lancashire.

DESIGN - RANDOMISED BLOCK

4 replicates.

CULTURAL DETAILS

Crop grown under standard commercial conditions.

Propagation - direct seeded into peat blocks. Early October 1987.

Planting - at 3-4 true leaf stage, late November 1987.

Temperatures- frost protection from direct-fired Priva type burners.

SPRAY PROGRAMME - Insecticides and fungicides applied as necessary.

Aliette was incorporated in the blocking compost and a full spray programme of dithiocarbamate fungicides and metalaxyl sprays was given as routine protective treatments.

RECORDS AND RESULTS - Performance of cultivars to be assessed throughout the life of the crop.

At harvest, (mid March 1988) records to be taken include those standard to NIAB trials ie weight, appearance - base, shape, leaf colour, degree of hearting etc, susceptibility to glassiness and tip burn and susceptibility to disease. Great emphasis will be placed on the commercially important factors such as ease of cutting and trimming, ease of bagging and appearance in the market packs.

A full report and results will appear in the August issue of Project News.

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Glasshouse lettuce - use of mildew resistant varieties during autumn and winter

Project Co-ordinator: B Sparkes
Project Leader : VH Criddle
Location : Commercial holding in Lancashire
Start Date : 1.10.87

Objective

To compare new cultivars of glasshouse lettuce, recommended for winter production, containing the R11 and/or R16 genes for resistance to metalaxyl resistant races of lettuce downy mildew.

Background

The lettuce plant (*Lactuca sativa* cultivars) is a host to the pathogenic phycomycete fungus *Bremia lactucae* commonly known as lettuce downy mildew. The disease is most prevalent in late summer and autumn during conditions of falling night temperatures,

high humidity and leaf wetness. Fungicides containing the chemical metalaxyl (Fubol 58 WP and previously Ridomil 25 WP) gave exceptionally good control for this disease when first introduced. In 1983 a strain of *Bremia lactucae* resistant to metalaxyl was discovered in the Hesketh Bank area of Lancashire. This resistant strain is now widespread throughout the country. Cultivars of lettuce containing the R11 or R16 genes are resistant to this strain of downy mildew. The use of these resistant cultivars (especially those containing the R11 gene) together with a full fungicide spray programme (including metalaxyl) have given growers a good strategy for the control of lettuce downy mildew. This trial was carried out to assess the commercial qualities of these newer cultivars of glasshouse lettuce.

Summary and conclusions

The report presents: mean weight of individual heads, percentage heads less than 200g (7oz) (see Table), total weight per plot and description of characteristics for each cultivar.

TABLE: MEAN WEIGHT PER HEAD AND % LESS THAN 200 GRAMMES

TREATMENT	CULTIVAR	MEAN WEIGHT/HEAD GRAMMES (OUNCES)	% LESS THAN 200g (7oz)
1.	RZ 42/93	229 (8.1)	13.7
2.	L 6150	250 (8.8)	8.8
3.	E4528	231 (8.1)	11.3
4.	Claret	270 (9.5)	2.5
5.	Bristol	275 (9.7)	1.3
6.	Barry	284 (10.0)	1.3
7.	Animo	268 (9.5)	1.3
8.	Oscar	271 (9.5)	5.0
9.	Karlo	279 (9.8)	1.3
10.	2166/85	263 (9.3)	2.5
11.	829/85	244 (8.6)	6.3
12.	Sanora	277 (9.8)	2.5
13.	Talent	252 (8.9)	2.5
14.	Liset	263 (9.3)	5.0
15.	Bonette	268 (9.5)	1.3
16.	Banjo	225 (7.9)	36.3
17.	E1358	246 (8.7)	6.3

The heaviest yields were obtained from the following varieties (heaviest first):-

1. Barry
2. Karlo
3. Sanora
4. Bristol
5. Oscar
6. Claret
7. Animo
8. Bonette

Barry, although the heaviest lettuce, was considered unacceptable on account of the very leafy and floppy habit, poor base and difficulty to cut and bag. Oscar was heavily puckered and the leaves were brittle while the larger number of small leaves made trimming difficult and slow. Bonette was soft and leafy but required heavy trimming while Amino had an open base and a tendency for the leaves to crack when handled.

Claret produced probably the most attractive heads and the most uniform in terms of individual head weight.