

## ABNORMAL BLACK CURRANT FOLIAGE CAUSED BY THE GALL MITE *PHYTOPTUS RIBIS* NAL.

By J. M. THRESH

### Abstract

Conspicuous malformation of black currant leaves, sometimes referred to as 'false' reversion, was associated with the presence of Eriophyid mites (*Phytoptus ribis* Nal.) in the apex of affected shoots. The symptom provides an indication of a mite infestation during the summer months, at a time when otherwise this can be demonstrated only by bud dissections.

The gall mite *Phytoptus ribis* Nal. has for many years been one of the most important pests of black currant. It occurs in large numbers within the terminal and axillary buds and causes a direct loss of crop by preventing them from developing flowers. Furthermore, recent experiments have confirmed the earlier conclusion (4) that the mite transmits black currant reversion virus, the most virulent strains of which greatly decrease crop.

The life history of *P. ribis* has been described by Massee (3) and more recently by Collingwood and Brock (1) and Smith (6). However, these workers do not explain how mites occur in the terminal and axillary buds produced after the usual period of mite migration. Nor do they report an effect of mites on black currant foliage as suggested by Schuch (5).

In the summer of 1961 and again in 1962 shoots of black currant were found at East Malling bearing abnormal leaves (Fig. 2). Usually there was a transition from normal leaves at the base of the shoot to those with extreme distortion at the apex. Affected leaves were glabrous and had few marginal serrations. Moreover, the lobes tended to become rounded, reduced to three and frequently asymmetrical, so that the halves of the leaf on each side of the midrib were not identical. Leaves 6 and 7 of the figure in Lees (2), reproduced in the Ministry of Agriculture publications on bush fruits (Bulletin No. 4, 1958) and reversion disease (leaflet no. 277), were probably affected by the same condition, which has been reported by several advisory officers from different parts of the country. The syndrome may be similar to that caused by reversion and is sometimes assumed to be the ultimate stage of this disease, or to be an example of 'false' reversion of non-parasitic origin.

The buds of numerous affected shoots were dissected in July and August 1961 and 1962 and examined under a binocular microscope. Invariably gall mites were found feeding amongst the leaf primordia at the apex. Mites were sometimes found also in the axillary buds of distorted leaves, but they were never found at the apex of normal shoots, or of those showing only the usual symptoms of reversion disease as illustrated in leaves 1-5 of Lees (2) and the Ministry publications. Mites were absent also from affected shoots with normal undistorted leaves near the apex, which appeared to have recovered.

Affected shoots which were found in July and August 1961 and 1962 were labelled and re-examined later; invariably the terminal bud which developed at the end of the growing season was infested with mites and became a typical, large, rounded gall. Certain of the axillary buds were affected similarly and many axillary buds were galled in bushes that showed no distorted foliage. Affected shoots were never found in the absence of mites, although numerous bushes were examined including many that were infected with reversion virus.

Terminal galls and distorted leaves of the type found in the field were seen whenever mites became established at the apex of seedlings inoculated some weeks previously with mites in virus-transmission tests carried out in the glasshouse (Briggs and Thresh, unpublished). It seems that both axillary and terminal buds may be infested during the migration period and become galled in the autumn. Before this occurs infested axillary buds usually remain dormant, whereas infested apices continue to grow and produce abnormal leaves, the axillary buds of which may contain mites and become galled. These suggestions are consistent with observations on field and glasshouse plants and explain the occurrence of mites in buds which appear after the mite migration period is over. Moreover, the leaf symptoms provide the advisory officer and grower with a convenient indication of the presence of mites during the summer months. Previously an infestation could be demonstrated at this time only by an extensive series of dissections.



## REFERENCES

- (1) COLLINGWOOD, C. A., and BROCK, A. M. (1959). Ecology of the black currant gall mite (*Phytoptus ribis* Nal.). *J. hort. Sci.*, **34**, 176-82.
- (2) LEES, A. H. (1921). A method of identifying reversion of black currants. *Ann. Rep. Long Ashton Res. Sta. for 1920*, 66-70.
- (3) MASSEE, A. M. (1928). The life history of Blackcurrant Gall mite, *Eriophyes ribis* (Westw.) Nal. *Bull. ent. Res.*, **18**, 297-309.
- (4) — (1952). Transmission of reversion of black currants. *Rep. E. Malling Res. Sta. for 1951*, 162-5.
- (5) SCHUCH, K. (1960). Die brennesselblättrigkeit der Schwarzenjohannisbeere. *Rhein. Mschr. Obstb.* Nr 4.
- (6) SMITH, B. D. (1961). Population studies of the black currant gall mite (*Phytoptus ribis* Nal.). *Ann. Rep. Long Ashton Res. Sta. for 1960*, 120-4.

## EXPERIMENTAL

Experimental resistance to bacterial canker in the resulting canker resistance or immunity scion varieties Victoria Balan B, but EC3, was influenced by the

Wormald (7) can be reduced by using which the percentage grafted high than an trials at East Malling crotch of trees with and damage from, the degree of resistance has certain disadvantages tall to be picked and ('feathers') which describes trials that resistant stembuilders

## Sources of resistance

Twenty-eight clones from open-pollinated been provisionally segregation.

The clones were between plants and 7 available in each clone clean stem for inoculation.

The stems of the *mors-prunorum* in No inoculation has been inoculation and the and the size of the lesion.

In all but a few were considerable difference variation of resistance arbitrary groups viz. resistance (6 clones).

With one exception classified as highly resistance developed relation on those classified as in were affected. This group some of the clones appeared