

SPEEDING UP OAK PRODUCTION WITH EXTENDED DAYLENGTH

S.J.F. MAXFIELD

Sloccock Nursery
Goldsworth Road, Woking, Surrey

In 1956-57 R.J. Downs, H.A. Borthwick, B. Waxman and J.P. Nitsch carried out experiments on the effects of photoperiodic stimuli on trees. Various things were discovered including the fact that oaks (the species they used was *Quercus rubra*) responded to continuous daylength and, as a result of their treatments, grew to 8 ft. in one year.

In 1974 I tried a rough experiment using four different species, namely *Quercus rubra*, *Q. robur*, *Q. cerris* and *Q. ilex* to discover whether there was any application of these results for the commercial grower. I used reasonable quantities of each species, to wit: 1,750 *Q. rubra*, 1,500 *Q. robur*, 1,000 *Q. cerris* and 750 *Q. ilex*. In all cases 1 year seedlings were used potted into 7"×9" polypots in a soilless compost. There was no control. The lighting used was 40 watt tungsten filament bulbs 3 ft. apart suspended 3 ft. above the crop. They were placed in an 'old' cold greenhouse which had a polythene skin inserted inside to make it waterproof.

After growth commenced the plants were fed weekly (this was at the end of April). Lights were turned on at the end of January and the plants were subjected to continuous daylength until October when they were given short nights, gradually lengthening until the end of October when the lights were turned off altogether.

Briefly, the results were that *Q. robur* and *Q. cerris* failed to respond; *Q. rubra* responded and certainly grew to the 8 ft. suggested. The *Q. ilex* responded very well and it was to this species that I turned my attention this year.

Principally my object was to substantiate the findings of the previous year with controls. I also wanted to find out what the effect was on seedlings; i.e. if the growth could be obtained in the first year, and what happened to the plants subjected to light in the previous year, i.e. whether they grew normally or not.

The results I can give at this time are, of course, mid-season and so do not show the final potential of the plants. This is aggravated by the fact that *Q. ilex* seedlings put on most of their growth after the middle of July and continue growing right into October (or, of course, longer if one maintains lights on them). From what I can discover this year, it appears that the larger the plants in the beginning the more they grow with lights on them.

Briefly the results to date are these:

A. *First year seedlings*: about 1'' difference.

B. *Small 9 month old seedlings*. (2'' high at commencement of experiment): 9'' for controls compared with 1'4'' under lights.

C. *Well established 18 month old plants* (7'' at commencement of experiment): 1'10'' for control plants compared with 3'4'' for plants under lights.

D. Plants from last year averaging 5' now average 8'6''.

I expect plants in group B to top 3' at the end of the season and those in group C to top 5'. Last year with established 1 year seedlings 6'' high, the final results were between 2½ to 5'8'', averaging 4'.

Accurate costings are not valuable in this case as inevitably being an observation, these plants had more attention than would normally be warranted. However the operations that should be considered are: potting, caning & trimming (2 or 3 times in the season), regular watering and weeding.

Our entire crop was sold last year with apparent satisfaction. It may be of interest that the last time Slocock's offered *Q. ilex* at 3½ ft. was in 1907. We have never offered them at 6-8 ft. which we are doing this year.