

(Reprinted from *Nature*, Vol. 177, pp. 93-94, Jan. 14, 1956)

### Influence of Day-length on Nodule Formation in *Soja hispida* by a Specific *Rhizobium* Strain

EXPERIMENTS have been carried out upon the action of day-length on the formation of nodules by a specific *Rhizobium* strain. Two different varieties of *Soja hispida* (Capitole and Kouban 0375) were used. In each case, four series were made: two were exposed to an 8-hr. day, and the other two to a 16-hr. day. Both for the 8- and the 16-hr. day, one group was sown with the specific *Rhizobium*, the other being sown without the *Rhizobium* (control). The temperature of the room was maintained at 20° C. during the whole experiment in the phytotron installation at Liège. Artificial light was given by six fluorescent 'Phytor' lamps at 65 cm. from the soil (4,500 lux at the soil surface).

It was observed that the *Rhizobium* was able to colonize perfectly the roots of plants in the case of the 16-hr. day, whereas for an 8-hr. day colonization remained very feeble.

With a 16-hr. day, heavy and numerous nodules functionally effective, developing a dark red colour in the internal tissue, were obtained. On the contrary, for an 8-hr. day, nodules were rare and very small; the colour of the inside tissue was pink only for the largest of them; in one experiment, there was total absence of nodules with an 8-hr. day (Fig. 1).

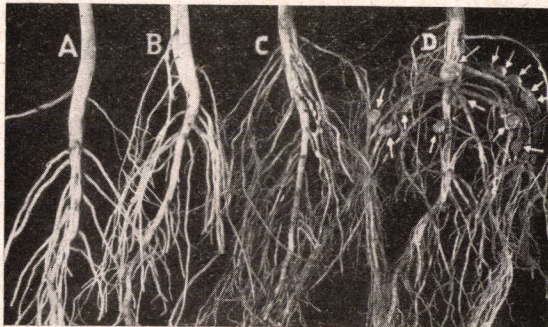


Fig. 1. (A) Roots of plants in 8-hr. day, without *Rhizobium*. (B) Roots of plants in 8-hr. day, with *Rhizobium* (no nodules are formed). (C) Roots of plants in 16-hr. day, without *Rhizobium*. (D) Roots of plants in 16-hr. day, with *Rhizobium* (heavy and numerous nodules are formed; indicated by the arrows)

It appears that the day-length to which the leaves of the plants are exposed—in other words, the functioning of the leaves—has an influence on nodule formation by a specific *Rhizobium* and specially on the functional effectiveness of the nodules.

CH. BONNIER

C. SIRONVAL

Institut agronomique de  
l'État à Gembloux.

Institut de Botanique et  
Centre de Recherches des  
Hormones végétales,  
I.R.S.I.A., Liège.

Sept. 7.