Can the hens work and hide in their feed?

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Abstract: See conclusions

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Introduction

An experiment with laying hens in mobile houses in rapeseed and sunflower crops was performed in the summer 2003. The hypotheses were that the hens would have a regulatory effect on weeds in these crops, that the hens would regard crops higher than themselves as protective, and that sunflower seeds could be part of the hens' feed intake harvested by the hens. From an ecological perspective, such interactions could mean smaller resource costs for feeds and weeding and an appreciated environment for the hens.

Materials and methods

One hundred 16 weeks old hens of Lohman Selected Leghorn (LSL) were equally distributed between 2 mobile houses, and each house (flock) was moved between four 200 m^2 experimental plots for 3 weeks on each plot (in total 8 experimental plots). The plot crop in periods 1 and 2 was rapeseed, in periods 3 and 4 sunflower. Before and after the presence of the hens, the number and mass weight of crop and weed plants was estimated from 6 subplots of 0.25 m^2 from each of the two parallel experimental plots and were compared with a control plot without hens. Twenty measurements of the height of the crops were taken along the diagonals of the plots. The hens were fed whole wheat and oats, a fishmeal-calcium-vitamins/minerals blend in the relations 7:2:1, and shells, all in free choice *ad libitum*. The distribution of the hens in the crops was studied during 8 days at 514 occasions. Distances of 5, 15 and 25 m from the houses were marked. Every other hour between 7h and 19h the number of hens in the different zones was counted. The observer was outside the plot.

Results

On average, 25% of the hens were more than 5m from their house during the time studied. The biggest difference was between periods 1 and 3, 14 and 37 % respectively ($p<0,001$). Most hens were out between 14h and 17h in periods 2 and 3. In period 1, the growth of the weeds was equal in the experimental plots and the control, but the rapeseed grew significantly less than the control. Thus, the hens had no influence on the weeds but a negative influence on the growth of the crop. The height of the crop was lower than the hens. In periods 2, 3 and 4 the hens had a significantly decreasing effect on the weeds in number and mass weight but no difference in crop growth compared to the control. The crop was higher than the hens. The harvest of rapeseed was low in both experiment and control plots, corresponding to 360 kg ha^{-1}. In the experiment, 7% of the harvest was weed seeds, in the control 45% was weed seeds.

Conclusions

The hens can regulate weeds in row sown crops. The hens harvest sunflower seeds from the plants, starting at an earlier stage than harvest time. The hens can move around in these crops without trampling them. The hens were out more when the crop was higher than the hens.