

## **Four Years of Biological Control of the Infestations of Grasshoppers (*Calliptamus Italicus*) in Emilia-Romagna Region by Means of the Employment of Guinea Fowl (*Numida Meleagris*)**

Ferrari, R.1, Cavallini, G.2, Testi, V.3, Montepaone, G.2, Bariselli, M.4, & Bugiani, R.4

### **Abstract**

*The guinea fowl (*Numida meleagris*) is very active in the predation of grasshoppers. Given this ability, it is possible to realize biological control of the infestations of *Calliptamus italicus* on the farms, where the grasshoppers are more dangerous. The biological control of grasshoppers by means of guinea fowl has been proposed on a wide scale from 2005 in some provinces of the Emilia-Romagna region (Bologna, Modena, and Parma). Such a technique was applied successfully in some trials where guinea fowl were distributed to hillside farmers, where infestations are frequent and every year; thousands of guinea fowl were distributed.*

*During the springtime, field technicians collected the applications of the farmers (both organic and not) willing to participate in the field experimentation and guinea fowl of a suitable age were supplied in order to have the maximum predatory capability. In the last period of May, in coincidence with the first births of neanidae of *Calliptamus italicus*, the guinea fowl were distributed to the farms (Indicatively 5-6 samples/hectare, with a minimum of 20 guinea fowl per farm). In the summer, a protocol of employment of the guinea fowl was defined in order to guarantee the survival and the acclimatization of the birds. During the surveys, the movement ability of the guinea fowl and their effectiveness in the predation of grasshoppers was assessed by means of questionnaire compiled by the farmers.*

*The results showed that for an effective utilization of guinea fowl, a minimum of 20 birds to a maximum of 100 birds per farm, should be distributed according to the infestation level. Moreover, with high infestations, the birds provided their maximum activity in controlling the grasshoppers in a radius of 100-200 meters from the farm*

---

<sup>1</sup> Centro Agricoltura Ambiente - Via Argini Nord 3351 Crevalcore (Bologna) – Italy.

<sup>2</sup> Consorzio Fitosanitario di Modena - via Andreoli 13 Modena Italy.

<sup>3</sup> Consorzio Fitosanitario di Parma - v.le Gramsci, 26/c Parma Italy.

<sup>4</sup> Servizio fitosanitario (Plant Protection Service) – Emilia-Romagna Region – via Saliceto 81 Bologna Italy.

*center. Only in case of low infestations, the birds moved beyond 500 meters from the point of release, in order to feed. The predatory activity of the birds was directed primarily on grasshopper's non-mobile forms, while adults could fly away. Ninety-one percent of the farmers declared their satisfaction, and gave a favorable response to the prosecution of the initiative, while only a 3.6% declared a preference to be given funds for purchasing insecticide.*

*This experiment did not aim to totally control the grasshopper infestations, but to reduce the crop damages and the nuisances to the farmers within acceptable levels by natural means. The grasshopper population in some areas of the Emilia-Romagna Region has reached high levels, due to the favorable climate and the progressive abandonment of the hillsides and mountains. The use of the guinea fowl does not solve the problem completely. However, they may offers an ideal solution for organic farms and a valid alternative to the insecticide applications in the majority of the conventional farms.*