



Organic Agriculture – Protection of Farmland Birds inclusive?

Background

In the new federal states of Germany, as successor to the agricultural producers' cooperatives "LPG"s, actually large areas are managed by organic farms. This is a new opportunity and also a challenge for nature conservation, since organic agriculture must be profitable, as well; the protection of wildlife cannot be taken for granted.

The Nature Conservation Farm Brodowin (project 2001 - 2006) is investigating the interactions between organic agriculture on a large area and nature conservation, pointing out conflicts and working out possible solutions. Main aim is to take into consideration the protection of the typical flora and fauna and the effects on plant production and business management.



The Demeter Farm "Ökodorf Brodowin" is located in the Schorfheide-Chorin Biosphere Reserve and covers an area of 1.237 hectares, being one of the largest organic farms in Germany. It is making available large parts of its agricultural land for investigations in cause of the project.

Strategies and Methods

One focus is on optimising habitat conditions for farmland birds, particularly Skylark *Alauda arvensis*, Corn Bunting *Miliaria calandra*, Yellow Wagtail *Motacilla flava* and Whinchat *Saxicola rubetra*.

Main strategies (samples) are

- changes in the mowing management of legume-grass forage, e.g. delay of the cutting period, increase in the cutting height

- reduction of tillage measures in grain crops during the reproductive season

Research activities comprise each year

- territory mapping on up to 550 ha arable land
- nest searching (investigation of breeding success) on up to 250 ha arable land
- assessment of yields and product quality

Results

Conflict analysis in legume-grass forage

All species under research preferably or exclusively (Whinchat) breed in forage. Breeding success of 25 Skylark nests that were affected by mowing was low (fig. 1). The main reason for failure (44%) was that many nests could not be found by the adults after mowing. Direct destruction of nests through

mowing only had a 15% share in the losses. The monitoring of 53 second broods of Skylark revealed that the birds restarted breeding 18 days after the first cut on average (fig. 2), when vegetation height had reached about 20 cm. Thus, at the time of the second cut a majority of the Skylark broods was still occupied with eggs or nestlings.

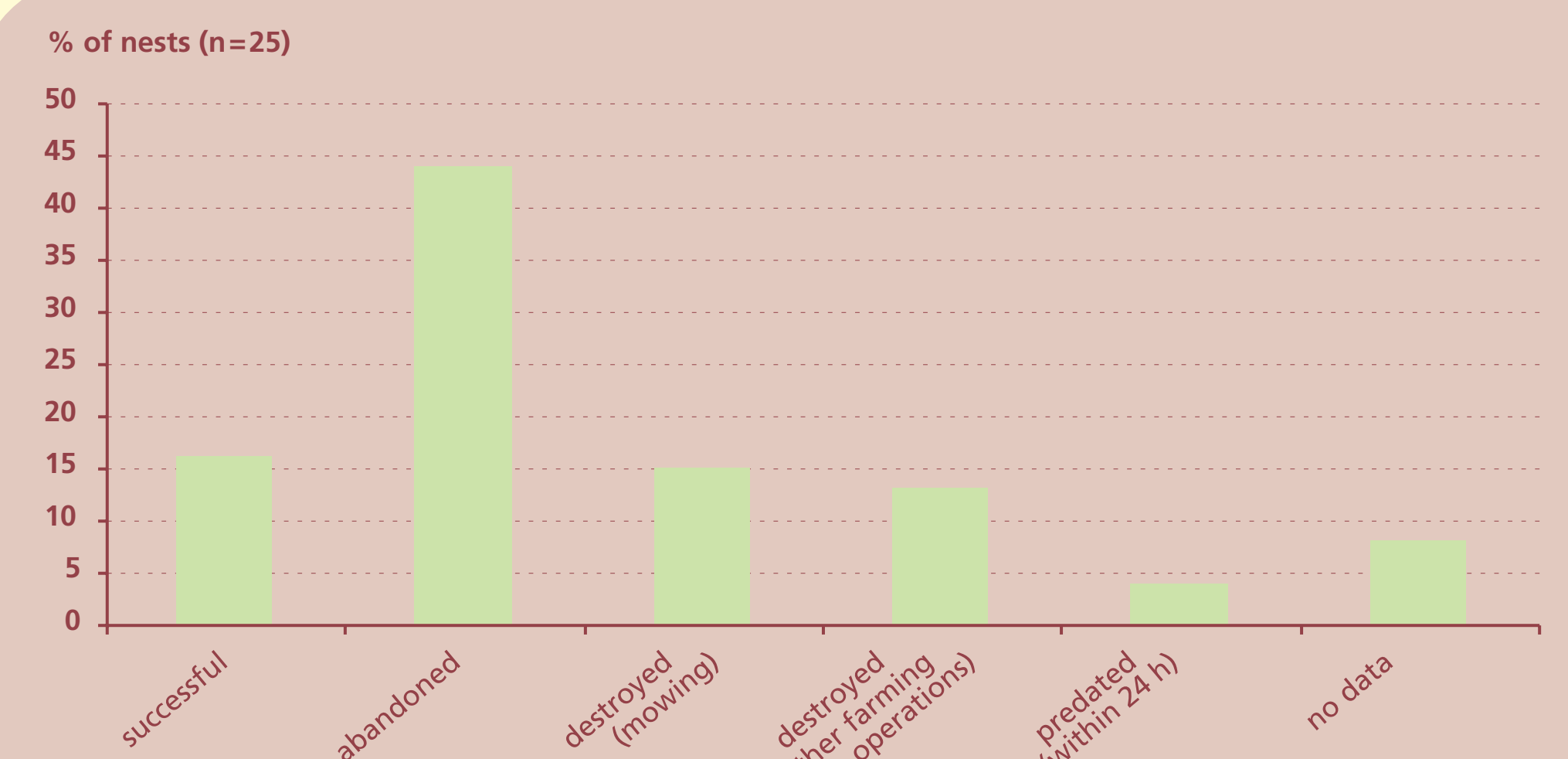


fig. 1: Nest fate of 25 Skylark nests that were affected by mowing in legume-grass fields

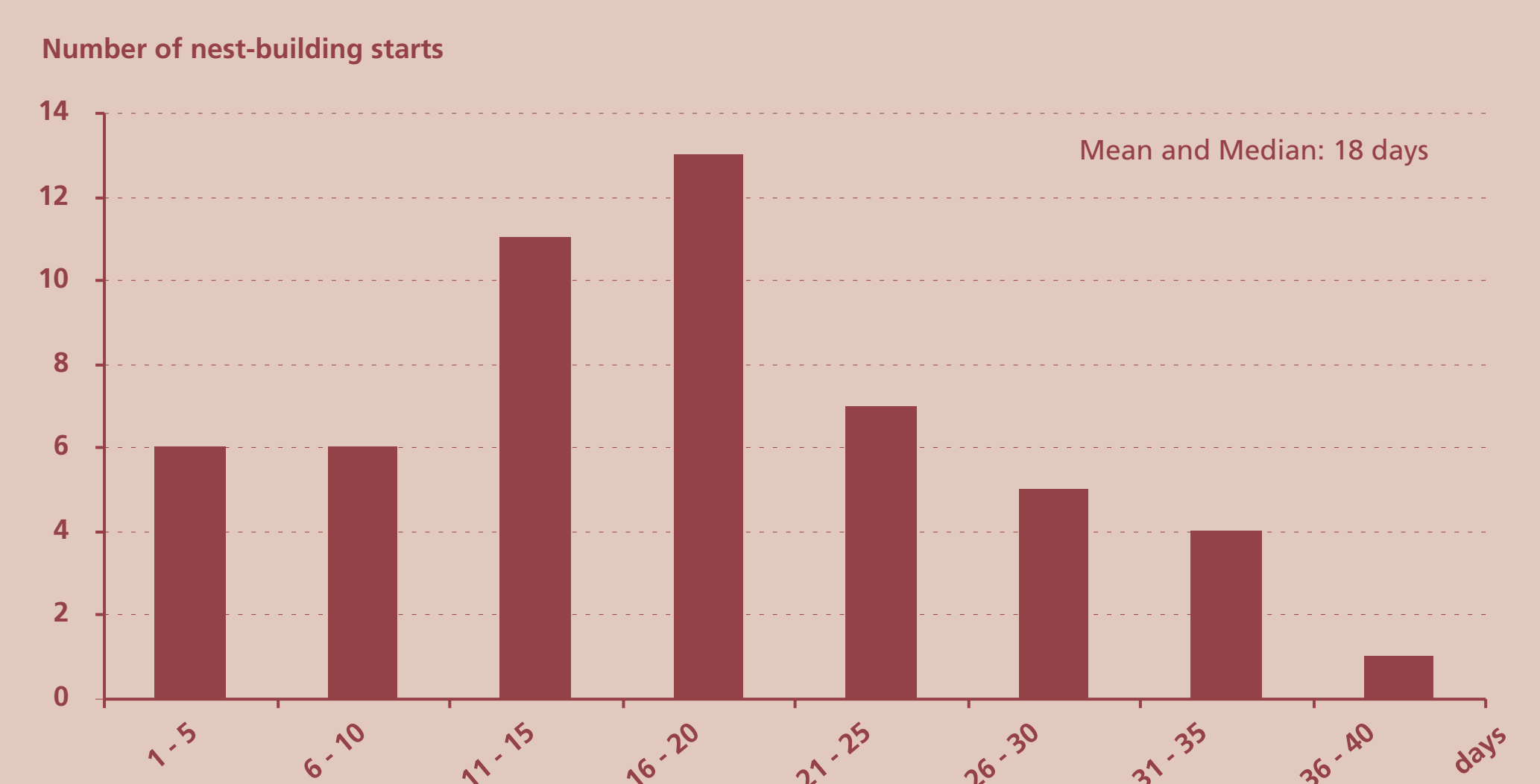


fig. 2: Time interval between first cut and time of restart of nest-building (53 Skylark nests)

Results

Conflict analysis in grain crops

The recorded nest-building starts of 34 Skylark broods were later in the season than expected from vegetation height. All nests were built at least six days after the last harrowing operations in the investigated crops (fig. 3).

Yellow Wagtail and Corn Bunting significantly preferred dicotyledonous plants as "nest plants" (86% of the nest plants recorded) compared to cereal crop plants and grasses (fig. 4). In contrast to the Skylark, both species were only found in cereals where dicotyledonous plants guaranteed a multi-stage plant horizon.

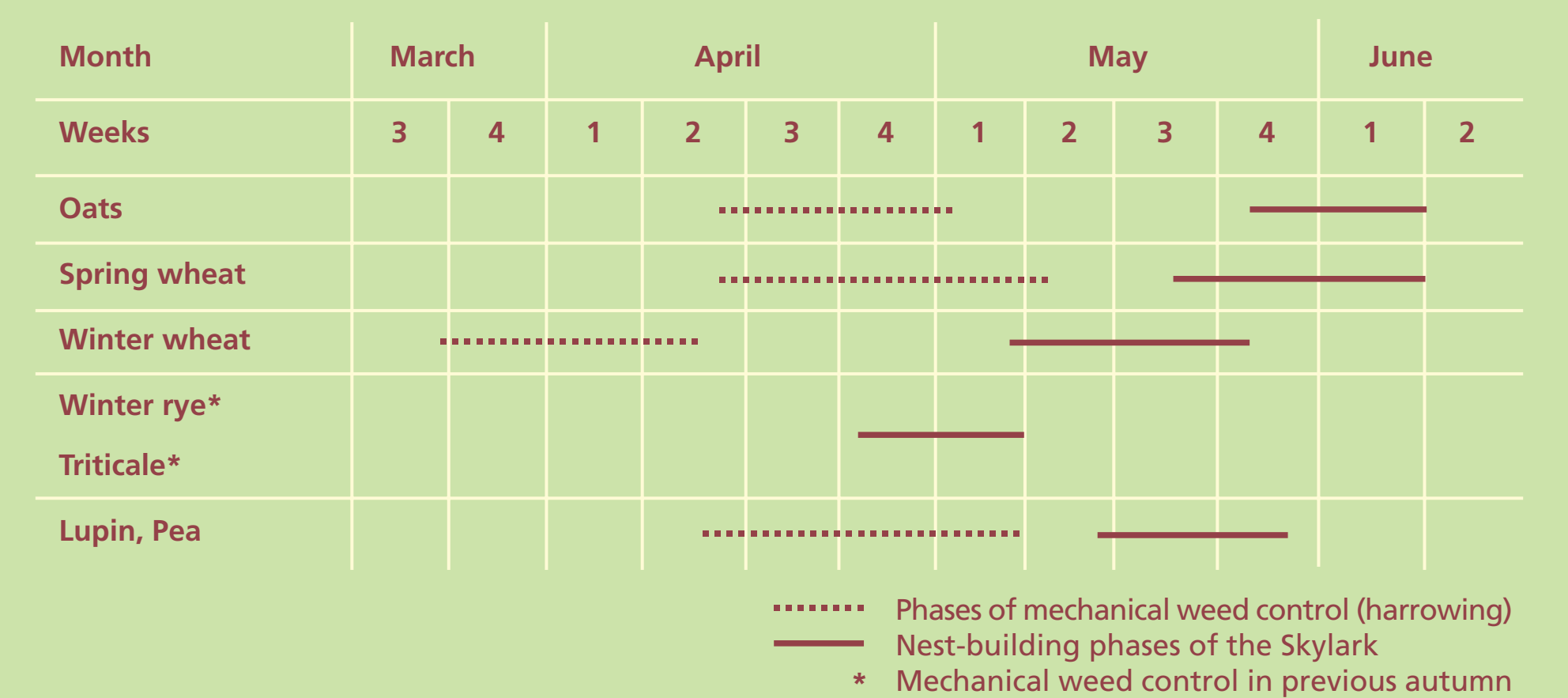


fig. 3: Times of mechanical weed control in grain crops and recorded nest-building periods of Skylarks

Conclusions

Conclusions for optimising habitat conditions

• In legume-grass forage

An interval of seven weeks between first and second cut will guarantee a suitable time period free from agricultural interference for the Skylark. However,

• In grain crops

The frequently reported conflict between weed control and reproduction success of farmland birds could not be confirmed so far. To accept a cereal field as a breeding habitat, the availability of dicotyledonous plants as "nest plants" and, that grow higher than the crop layer in May/June is necessary for Yellow Wagtail and Corn Bunting.

this leads to a severe decline in fodder quality that is not suitable for dairy cows (Stein-Bachinger & Fuchs 2004). A compromise could be a higher first cut (>14 cm) with an improved fodder quality. This should lead to earlier breeding starts after the first cut which would allow an earlier second cut.

In spring cereals the latter condition is met more often. Thus, species number can be influenced positively by an increase in spring crops. In addition, an efficient weed control may indirectly lead to a deterioration in habitat quality.

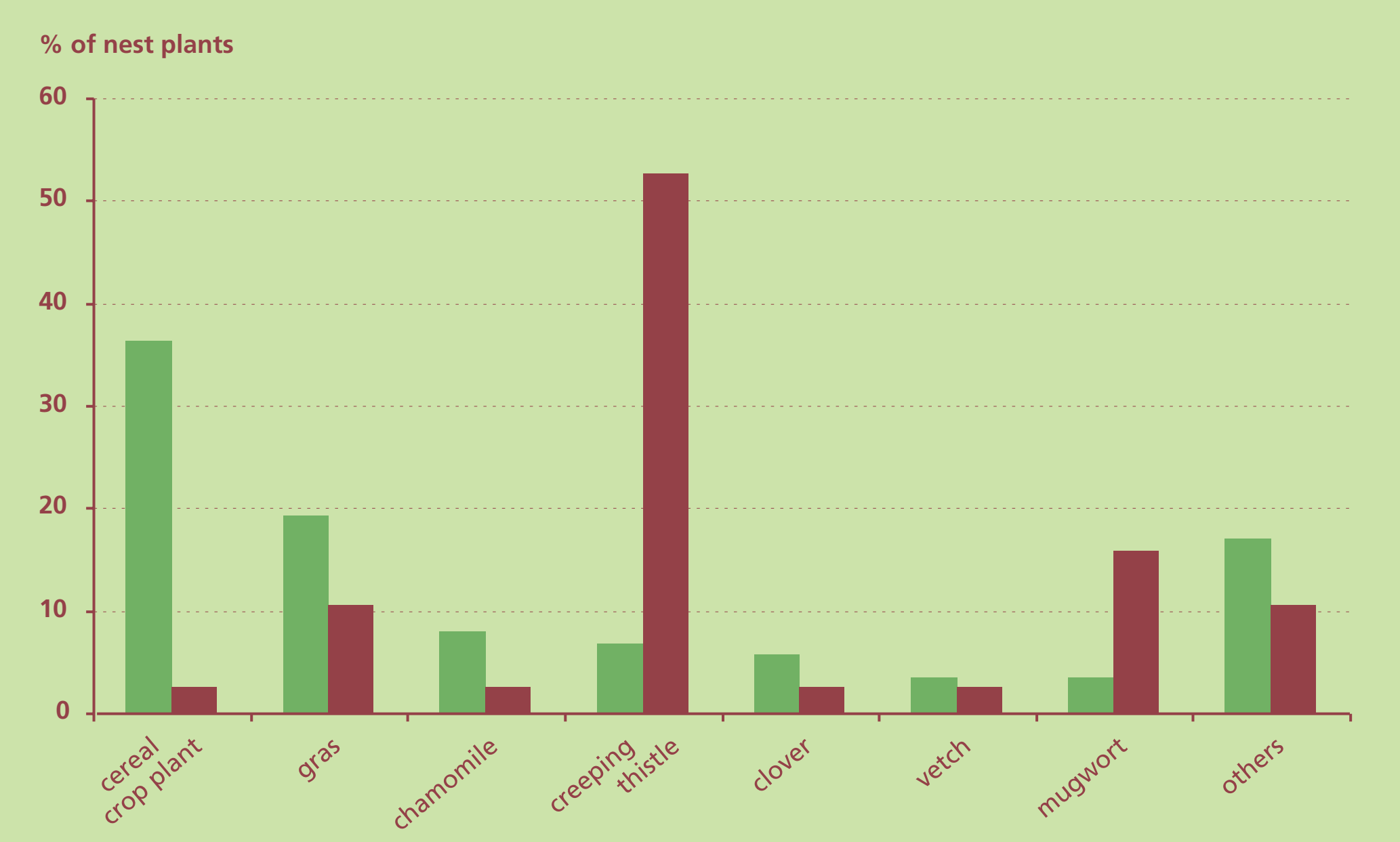


fig. 4: Nest plants of Skylark, Yellow Wagtail and Corn Bunting in grain crops

► Literature cited: Stein-Bachinger, K., Fuchs, S. (2004): Wie kann der Lebensraum Acker im großflächigen Ökologischen Landbau für Feldvögel und Feldhase optimiert werden. Special Issue, FAL Agricultural Research (in print).