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A SURVEY OF RABBIT DAMAGE AND CONTROL MEASURES USED IN THE EAST AND NORTHEAST OF SCOTLAND

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ABSTRACT: A postal survey conducted of 172 farms in the intensive farming areas of East and Northeast Scotland revealed that one in four farms considered that there was a serious rabbit (*Oryctolagus cuniculus* L.) problem. Although a wide range of crops was subject to damage, winter cereals and winter oilseed rape were particularly affected by grazing, especially in the winter and spring periods. Two-thirds of farmers reported damage to temporary and permanent grass in the spring. The most common methods used to control rabbit damage were day-time and night-time shooting. Most methods of control were considered to be cost and time effective.

KEY WORDS: rabbit, damage, control, survey, Scotland

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INTRODUCTION

Although the rabbit (*Oryctolagus cuniculus* L.) was believed to have been introduced into Britain in the 12th century AD. by the Normans, it was not until the breakdown of the feudal system that rabbits began to spread over much of the country. Changes in agricultural practice, such as the creation of hedgerows made ideal burrowing areas for rabbits to establish new, uncontrolled warrens. The control of game predators and the deliberate spread of rabbits for sporting purposes led to an increase in numbers and played an important role in their spread (Thomson and Worden 1956). For example, Shaw (1989) reporting from the diaries of a prominent Scottish landowner of the 19th century, noted that rabbits were not recorded in the north of Scotland until the early 1800s and how young rabbits were imported and very soon established a viable colony. The whole North was "swarming with the little pets" before the end of the century, which was considered by the diarist to be "such a benefit on the Highlands." However, a continuously increasing population of rabbits also meant an increase in the grazing damage caused to arable crops and grassland.

Various estimates have been made of the cost of rabbit damage to British agriculture, ranging from £50 million sterling in the 1950s before the arrival of the disease myxomatosis (Thomson and Worden 1956) to £80 to 120 million sterling in the mid-1980s (Anon. 1986). Most recently, a survey carried out by the Scottish Office Agriculture and Fisheries Department (SOAFD) in 1991 established that rabbit damage in Scotland was costing the agriculture industry in excess of £11 million sterling annually and that serious rabbit infestations occurred on over 25% of farms in the eastern and northeastern areas of the country (Kolb 1991).

To provide an up-to-date picture of rabbits, the damage caused, and control methods used, a survey of arable and mixed farms on the eastern, crop-growing side of Scotland was carried out in 1996.

METHODS

A questionnaire was devised following the guidelines of MacDaniel Jr. and Gates (1993), using a series of

scaled questions to determine farmer opinion in the following areas :

- a) What was the extent of damage and which crops suffered most damage from rabbit grazing ?
- b) What control methods were used ?

Supplementary questions were used to ascertain whether any of these methods were carried out as sporting activities and whether they were regarded as being effective. Farmers were not given a definition of the word "effective."

- c) Did the rabbit problem originate on the farm or on neighboring land ?
- d) Further questions asked about the future for rabbits and the provision of advice and education. Respondents were invited to add written comments to the questionnaire.

Farms in the arable and mixed cropping areas of East and Northeast Scotland were selected randomly and independently from the Yellow Pages and the questionnaire was sent to 362 farms in June 1996.

RESULTS

One hundred sixty-eight usable questionnaires were returned by the cut-off time in August, giving a return rate of 46%.

- a) *The extent of the rabbit problem.* The overall perception of rabbits was that they were a significant problem throughout most of the year. Just over a quarter of farmers (26%) considered that they had a major problem on their farms, and 44% believed that they had a rabbit problem of medium importance. Crops particularly affected appeared to be the winter sown varieties of wheat, barley and oilseed rape, particularly during the winter and spring seasons. Approximately half of the farmers in the survey reported that cereal crops were at least partially affected by rabbit grazing in the spring. Winter oilseed rape was particularly affected during its establishment period in the autumn. Almost two-thirds of permanent and temporary grassland was reported to be affected also in spring.

b) *Methods used to control rabbits.* Even though exclusion (fencing) was only used on just over one-third of farms, it was the method which was perceived by most farmers (87%) to be an effective means of controlling rabbit damage (Figure 1).

The most common method of rabbit control was shooting, with 70% of farms undertaking shooting in the day time and 59% at night. Night-time shooting was regarded as being more effective than day-time shooting. Less than half of the respondents regarded day-time shooting as being effective, though approximately one-third regarded rabbit shooting as a sporting activity as well as a means of control.

Poisoning rabbits by gassing, using hydrogen cyanide powder or aluminum phosphide tablets was the second most common method of reducing populations, used on 59% of farms, with both types of materials being used to the same extent. Gassing by professional vermin controllers was carried out on 44% of the farms that used that method, whereas 61% of gas pellet operations were carried out by farm staff.

Snaring was used on 22% of farms but was seen as an effective way of controlling rabbits and almost half of the farms that used this technique employed professional trappers. Use of a spring trap was the least popular method and was not considered to be either cost or time effective.

Rabbits were consumed on less than 8% of the farms where they were shot or trapped, though 20% of farms that snared, ferreted, or used box traps reported that they sold rabbit carcasses to a game dealer.

Regular outbreaks of myxomatosis were reported on most farms, though opinion appeared to be divided about the effectiveness of the disease as a means of moderating rabbit populations; 61% of farmers considered that it no longer played an important role.

c) *Did the rabbit problem originate on the farm or on neighboring land?* Over 55% of all respondents had fields which shared common boundaries with either railway tracks or woodland. More than 79% of farmers with these common boundaries reported that the adjacent land areas provided a reservoir for uncontrolled rabbit populations.

d) *Other highlights of the survey.* In answer to supplementary questions, over 88% of respondents felt that the public should be made aware of the problems that rabbits can cause for agriculture, and the majority considered that rabbit numbers should be restricted either by elimination (33%) or populations kept at low levels (52%); nearly 15% felt that rabbits should be confined to nature reserves.

Most farmers (58%) seemed to rely upon word of mouth for information about rabbit control, whereas only 26% sought advice from professional vermin controllers; less than 10% sought advice from state and commercial advisory bodies.

Only a small number of farmers (less than 5%) were members of co-operative groups such as rabbit clearance societies, though almost half indicated that they may be prepared to attend courses on control, but in many cases only if there was "something new."

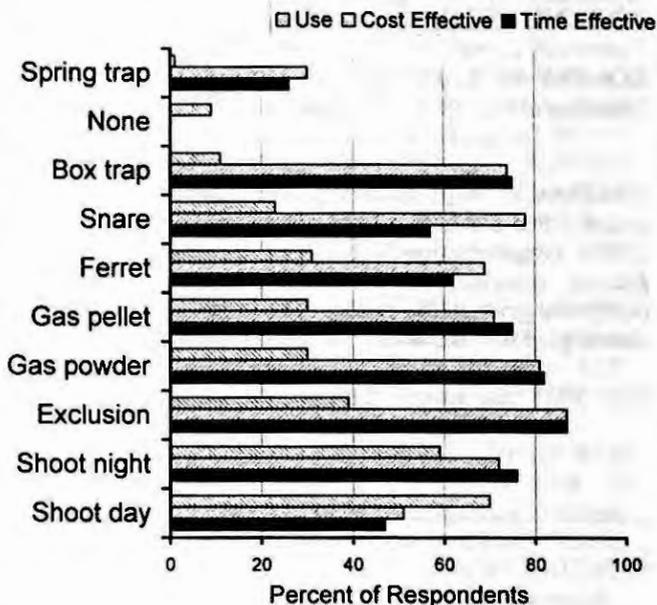


Figure 1. Responses to a survey of farmers in East and Northeast Scotland to determine methods used to control rabbits and the percentage of cost or time of each method.

Almost every respondent in the survey took the opportunity to add written comments to the returned questionnaire. Some highlights of these comments were:

- "It's such a large problem, it is beyond farmers to cope with it."
- "It could become the biggest problem in agriculture if not addressed now."
- The attitudes and role of the public towards wildlife is an important influence in the way in which rabbit populations could be controlled. References were made to "Watership Down" and Beatrix Potter, leading to "namby pamby" attitudes.
- Most farmers believed that a combination of control techniques was necessary.

DISCUSSION

The high rate of return for the questionnaire and the fact that most farmers elected to add extra written comments are clear indications that rabbits are regarded as a serious pest in Scotland. The reported proportion of farms experiencing a major rabbit problem (26%) confirmed the findings of Kolb (1994) that rabbits are considered by farmers to be an important problem on one in four Scottish mixed and arable farms.

Most control methods were perceived by farmers to be cost and time effective though they were not all commonly used. For example, almost nine out of ten farmers agreed that exclusion was effective, yet it appeared that this method was used on only four out of ten farms. Although day-time shooting was the most commonly used method of control, it was reported as the second least effective method after spring trapping, indicating that rabbits continue to be regarded as game animals as well as crop pests. Trout (1994) also reported

that daytime shooting was the most common method for rabbit control used by over 70% of farmers, but one of the least effective. The techniques of gassing, which are well-recognized as being effective, were only implemented on one-third of farms, though this is a higher proportion than reported by Thomas (1995) in a government report on pesticide use in Scotland carried out in 1994.

Methods of control such as snaring, box trapping and ferreting, which produce clean, saleable carcasses, could be exploited as a way of contributing towards the costs of control operations (Fuchs et al. 1996). However, the reluctance of the British public to eat wild rabbit meat, since the arrival of myxomatosis (Sheail 1991) explains why the sale of carcasses does not appear to be important on most farms.

Comments on the returned questionnaires indicated that the reason only a third of farmers in the survey sought technical advice on rabbit control is perhaps due to the fact they feel that there is nothing new to learn about control methods at the moment.

Total eradication of rabbit populations was favored by a third of survey respondents, but this may not only be technically difficult, it would also probably be unacceptable to the general public even if there was a wider awareness of the destructive role that rabbits play in the countryside.

The survey highlighted that rabbit damage results not only from populations within the area of the farm, but also from neighboring agricultural and non-agricultural land where often no control measures are being used. Successful control will only come through the coordinated cooperation of farmers over a wide area, using a range of different methods.

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