

Fallows in a Prealpine Valley of Southern France: from Two-Course Rotation to Set-aside. Farmer Practices and Representations

Bellon, S., Chabert, J.P. and de Blic, N.

Abstract

Fallowing, an old agricultural practice, was reintroduced in 1992 with the reform of European Common Agricultural Policy. In fact, fallows are very diverse; they must be in keeping both with evolving regulations and with farm functioning. To elaborate the latter issue, and particularly the farmers' options in terms of practices on fallows, interviews were conducted in a valley of the French Prealps. Traditionally, this is an area of two-course rotation. From 1992, farmers are being faced with new issues: set-aside may be voluntary or compulsory for those who wish to obtain compensatory support to offset the drop in market prices. At first sight, this practice seems very different from traditional fallowing. Both types of fallows occur in the valley, however, and sometimes even on the same farm. This paper reports on early results of a survey conducted in 1995. The traditional grazed-tilled-fallow is in fact managed; its main roles in past and current farming systems are examined. Several types of set-aside contracts are possible, which the local farmers adapt to their specific situation. It appears that farmers integrate their traditional knowledge of fallow management into the new set-aside regulation frame, using available technology.

Introduction

With the new Common Agricultural Policy, « fallows » are again on the agenda although fifty years ago they were considered obsolete... In fact this European step is inspired from the US experience with set-aside, designed to regulate food supply. In this paper the term « set-aside » is therefore dedicated to the practices associated with EU and French regulation frames. Conversely, « traditional fallow » refers to a long-lasting and widespread system where a tilled fallow follows on winter wheat or rye (Sigaut, 1991). This was a complex and fine-tuned system designed to produce and make a profit; it may be considered to be « sustainable » (Conway, 1987). It was altered with the introduction of longer rotations (« three-course ») or integration of legume crops.

Following investigations in a valley of the French Prealps, it appeared that some farmers still practise traditional fallowing; which shows some similarity with what has been described fifty years ago (Blanchard, 1945). At the same time, other farmers in the valley are compelled by current regulations to introduce set-aside in their system. The combination of such a diversity of fallows in the same area was investigated at the farm level, since farmers necessarily have

specific views on fallows as part of their past or present technical systems. Thus, set-aside is sometimes assessed -including by the farmers themselves- in the light of traditional fallows.

The evolution and roles of traditional fallows are dealt with in the first part of this paper. Farmer attitudes towards set-aside are then examined in relation with the contract they adopt. The subsequent discussion deals both with the farmers' capacity to adapt by integrating local knowledge into a new regulation framework and with possible research perspectives.

Context and methods

Framework: a valley in the southern French Prealps

This valley, a main watershed, comprises approximately 20 000 hectares. A 20 km river flows along it. The difference in elevation is about 500 m between valley top and bottom. There are 9 villages in the valley and about two hundred farms with mixed crop-livestock. As part of a network of research sites this valley is unique, being still active agriculturally, while farming in the region is sometimes characterised on the whole by rural dereliction.

In 1953, the valley became a "reference area" (Dumont, 1954), causing a swift development of mechanisation and modernisation. In this context, the local farmers were encouraged to give up their ancestral practices, namely fallowing, and grow forage crops instead. Traditional fallows are, however, still present both in the farmers' minds and in their fields. Cereals (wheat, barley, corn), forage grasses and legumes (lucerne, sainfoin, vetch) and aromatic plants (lavender and sage) form the main crops. Other crops are grown to a limited extent in dry cultivation (durum wheat, rapeseed) or with irrigation (seed production, peas). On the farms, these various crops are organised into cropping systems whose combination and distribution patterns have been investigated (Valentin, 1995). Sheep farming prevails in the area and is based on a combination of cultivated areas and rangelands (shrublands with ashy broom and white oak woodlands) either grazed separately or combined by the shepherd along a grazing route. Investigations on sheep farm operation have highlighted the role of grazed fallows in the annual feeding cycle. Fallows and set-aside lands are integrated into these mixed crop-livestock systems. In this perspective, fallows are not only an avenue to examine the evolution and adaptation of some practices but also an opportunity to address the farmers' representations and strategic choices.

A comprehensive approach based on interviews with farmers

Interview guidelines were drawn up to investigate the technical systems implemented by farmers. The following aspects are addressed:

- type of fallow practised, both currently and in the past.
- fallows in cropping systems: position in a crop sequence, duration, technical operations.
- fallows and farm management: work organisation, equipment, regulatory constraints.

Interviews were conducted in a selected sample of thirteen farms (de Blic, 1995). They were tape-recorded and then transcribed in full. Based on this material, nine themes were outlined to analyse the interviews (e.g. representations on fallows, land use and crop sequences...). The

main results are presented in the section below. On the whole, the interviews show that farmers carefully select the words enabling them to qualify the environment in which they move.

Traditional fallows in the valley

Definitions and associated representations

Fallows are multipurpose and multiform. They have been defined variously according to the wide range of ecological, economic and social conditions in which they occur (Chabert, 1993). Since possible confusion between the various meanings of fallowing may arise, special attention was paid to farmers' expressions. When referring to this practice, older farmers will generally mention a function: "resting the land" and a cultivation technique: "tillage". They distinguish between set-aside, traditional fallows and wasteland, due to different management of these areas. According to the farmers interviewed the two-course rotation prevailed into the mid-forties. After the harvest, the land was left unseeded. Stubble, weeds and herbage regrowth were grazed until the next spring. The land was then swing-ploughed or harrowed in May or June for a subsequent crop, generally winter wheat. If necessary, additional tillage operations were carried out in autumn to control weeds and prepare a seed-bed. This shows that traditional fallows were in fact managed using two assets: grazing and cultivation, two activities which converged on the same area.

The roles of grazed-tilled fallow in past production systems

Traditional fallows were assigned four main roles: work organisation, weed control, soil fertility maintenance and grazing flexibility. In the past, preparation of land for a cereal crop required much time with the draught force (animals) and implements then available. Thus, early tillage enabled the farmer to spread out work more evenly over the year and then to alleviate the autumn work peak (anticipation). This technique was also the main operation for reducing couch-grass development. Since manure and fertilisers were scarce, fallows also contributed to replenish soil fertility. Indeed, fertilisers were produced through three different processes: direct returns when grazed (plus possible transfer of fertility through animal mobility); mineralisation when tilled; accumulation of mineral nitrogen during the summer. Grazed fallows display specific patterns both in terms of grass production and forage availability. The same plot can be grazed several times: just after the harvest, for aftermaths, and during early or late spring (before ploughing). Thus, fallow grazing appears as a source of complementary and flexible forage resources, compared with rangelands and fodder crops.

Some consequences of mechanisation for traditional fallowing

The farmers have a clear opinion of the reasons for which the share of fallows in rotations eventually grew smaller. First with mechanisation, ploughing was speeded up and more land was cultivated. In addition new implements were available in particular the plough. This process was linked with the establishment of the "reference area", which resulted in a drastic reduction in horse numbers during the fifties. Forage legumes then took over the roles of "grazing" and "renewing soil fertility" formerly assumed by grazed-tilled-fallows. Finally, the accompanying development of chemical fertilisers and herbicides also reduced the role of

fallow for weed control. As a result, new cropping and feeding systems were designed, although some of them still integrate fallows.

Current practices of traditional fallowing

Situations vary according to the way activities and cropping systems combine on the farms. Among the farmers interviewed those who have mixed crop-livestock operations carry on with fallowing. The main reason given is that fallows provide for flexibility in the grazing schedule: opportunities for early spring grazing, low degree of pasture management, diversity of resources... Moreover, sheep farmers are not always able to sow all their cereals in the autumn, e.g. when lambing occurs at the same time. Another reason given for maintaining this ancient practice is then work allocation. This apparent competition between livestock and crops is overcome by further autumnal grazing on land that will be tilled subsequently. In some farms, fallows even appear to be structural... They are still considered as a good preceding crop for cereals and also enable the farmers to spread out sheep manure in May or June. In some cases, grazing of long-term fallows occurs in marginal areas. Although this may be seen as an economically questionable practice (low "option value", compared with sown grasslands), it has survived as elsewhere in the world.

Some of the specialised crop farmers still have traditional fallows. For these farmers, early ploughing (in June) produces a better seed-bed for the following crop, with finer, settled and levelled soil. One farmer, who additionally has a poultry enterprise, considers fallows as a utility for spreading manure. In dry cultivation, one of the prevalent cropping systems is based on cereals (2 to 3 years) and forage legumes (1 to 8 years according to species). In this case, integrating fallows enables the farmer to increase the share of cereals in a rotation such as [sainfoin (2-4 years)- cereals (2-3 years)- fallow (1 year)- cereals (1-2 years)].

Technological and societal changes did not lead to all the farmers rejecting long-lasting and multifunctional fallows. On the whole, farmers who have kept these fallows now give priority to one or two of their traditional roles: flexibility in the grazing system for livestock farmers or early ploughing for crop farmers. Both would seem to pay less attention to soil fertility replenishment through fallowing. However, integration of set-aside interferes with these current practices.

Farmer attitudes to set-aside

Regulations and options

There would seem to exist a significant difference between traditional fallows and the so-called "set-aside" designed in the frame of the new Common Agricultural Policy. The latter's main purpose being to restrict production, conditions imposed on set-aside are highly constraining (Sebillotte *et al.*, 1993). Particular attention must therefore be paid to these constraints and regulations since they determine a range of possible technical options for the farmers: type of contract and span of the set aside period, maintenance pattern... For large-scale cereal growers (annual production over 92 tonnes) wishing to obtain compensatory payment for grain (cereals, oil-seed and high-protein plants), there are two basic options in 1995: "rotational set-aside" (13,5 % of arable farmland) or "free set-aside", involving withdrawal of a larger area of land (18,3 % of arable farmland) and a plant cover. Other forms

of set-aside (for industry, wildlife, wood production..) are very limited in this valley. However, this regulation frame is still evolving and leaves room for both regional and local adjustments. Thus, one specific feature in the valley is the possibility of leaving set-aside land bare, although sown swards are generally recommended for mainly environmental purposes. The main reason is that certified seed production is an important activity in the "Alpes de Haute Provence" department; hence authorised methods to control weed extension are less restrictive. In order to keep set-aside land almost weed- or regrowth-free, possible options are spraying with approved herbicides and/or repeated cultivation.

Selection of a type of set-aside in relation with fallowing...

This section deals with the various forms of set-aside subsequently adopted by farmers, their implementation and consequences at the farm level. Examples of farm situations are given to show how farmers integrate set-aside into their operational processes and combine it with acquired knowledge on fallowing.

- Among the farmers interviewed, only one still practised rotational set-aside. He started in 1988 with a 5-year voluntary contract under which he withdrew 20 % of his arable land from cultivation each year. Then in 1993 he continued rotational set-aside. The farm fields are grouped around the farmstead: in this land arrangement, he grows cereals, rapeseed and forage crops in dry-cultivation. Opting for rotational set-aside enabled him to grow the following rapeseed crop successfully, with summer ploughing and earlier seed-bed preparation for September sowing. He adapted the ploughed fallow to fit rotational set-aside, even though, with modern farm equipment ploughing takes place in summer. By contrast, his neighbour dropped rotational set-aside in 1995 because this compelled him to leave good land in set-aside after the third contract year. Regarding rotational set-aside, farmers also mentioned their difficulties in planning rotations 5 or 6 years ahead with the adjustments required by the evolving administrative and economic context...
- Large-scale cereal growers are mostly located in the lower part of the valley, which is better suited for cultivation. Their farm generally includes over 60 ha of arable land split into several sections, some of them irrigated. They finally adopted free set-aside and, as recorded in other regions (Doré & Dalbiès, 1994), farmers set-aside in priority lands having lower productivity or involving work organisation constraints (distance, accessibility, shape and slope of the plot...). Nevertheless, remote areas are not always put under fixed set-aside: they can also be part of a rotation of the type: [set aside - rapeseed - durum wheat] or [set aside -cereals]. In the latter case, the crop sequence is derived from the two-course rotation; it can even leave room for early ploughing, in keeping with prevalent local regulations which allow to maintain the land bare. Finally, some of these farmers buy or rent additional, sometimes remote land (whether irrigated or not) and reorganise the allocation of set-aside areas accordingly.
- For smaller farmers, free set-aside may also offer some new opportunities. Thus sainfoin, which is widely cultivated in the area, is also eligible as a set-aside cover crop. Since sainfoin production is relatively low during the first cropping year, some farmers declare this first year as set-aside. It can then be grazed during the authorised period (after August 31st). Interestingly, a forage legume which partly replaced traditional grazed fallows is now turned into a set-aside crop... Finally, part-time farmers are numerous in the valley; they take advantage of free set aside for work-related reasons. Usually, they do not keep

livestock, and set-aside land is ploughed by elderly retired household members. Again, fallow related practices appear in relation with set-aside regulations.

Conclusions

By updating their traditional knowledge farmers adapt their practices to a new agricultural context. With traditional grazed-tilled-fallow, there seems to be no segregation between its roles and related activities: mixed cropping and livestock farming. The essential function of traditional fallows, namely flexibility, survives in the frame of specific set-aside regulations. Then, traditional fallowing locally provides a fruitful input for set-aside. Reconciling traditional knowledge with current technology is all the more feasible as bare set-aside land is authorised in this seed producing area. Moreover, among possible options, free set-aside is suited to many situations. How to better integrate grazing in set-aside is still an opened question, since this activity is banned during 4 months after May Day. Further research will focus on cropping systems including set-aside (especially technical sequences of operations) and set-aside regulations. It would benefit from being part of a wider network involving a greater number of « reference areas » both at the French and European levels.

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References

- De Blic, N. (1995) Les jachères dans la vallée des Duyes (04): pratiques et représentations. *Mémoire de l'IAAL de Lille / INRA-SAD Avignon*. 32 p.
- Blanchard, R. (1945) Les Alpes occidentales, Tome IV, Les préalpes françaises du sud. *Arthaud Ed., Grenoble-Paris*, 940 p.
- Chabert, J.P. (1993) Points de repères dans les champs de la jachère. *Ronéo INRA-STEPE Ivry*, 34 p. + annexes.
- Conway, G.R. (1987) The properties of Agroecosystems. *Agricultural Systems*, 24, N° 2: 95-117.
- Doré, T. and Dalbiès, A. (1994) Retrait des terres et systèmes de culture. *Cour. Cell. Env. INRA*, 21: 27-34.
- Dumont, R. (1954) Esquisse de certaines possibilités dans la moitié sud des Basses Alpes. *Revue de Géographie Alpine t. XLII, III*: 423-455.
- Sebillotte, M., Allain, S., Doré, T. and Meynard, J.M. (1993) La jachère et ses fonctions agronomiques, économiques et environnementales. *Cour. Cell. Env. INRA*, 20: 11-22.
- Sigaut, F. (1991) La jachère dans les agricultures pré-contemporaines de l'Europe. In *La jachère en Afrique de l'Ouest, ORSTOM Editions*: 113-123.
- Valentin, L. (1995) Les systèmes de culture: combinaisons et localisations dans les exploitations de la vallée des Duyes. *Mémoire INA-PG / INRA-SAD Avignon*, 47 p.