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Harkness, C., Areal, F. J., Semenov, M. A., Senapati, N., Shield, I. F. and Bishop, J. 2021. Stability of farm income: The role of agricultural diversity and agri-environment scheme payments. *Agricultural Systems*. 187, p. 103009. <https://doi.org/10.1016/j.agry.2020.103009>

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- <https://doi.org/10.1016/j.agry.2020.103009>

The output can be accessed at: <https://repository.rothamsted.ac.uk/item/98304/stability-of-farm-income-the-role-of-agricultural-diversity-and-agri-environment-scheme-payments>.

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## **RRes Press Release 19 Jan 2021 Agri-environment subsidies provide more stable farm incomes than direct payment**

### ***Diversifying farm outputs also makes farms more resilient***

Subsidies paid to farmers for protecting the environment lead to more stable incomes compared with payments based purely on the number of hectares being farmed, [according to a new study of farms in England and Wales](#).

The findings are of great relevance as, post-Brexit, the UK moves to the new Environmental Land Management subsidy system.

The research, from Rothamsted Research, the University of Reading and Newcastle University, also shows that farmers shouldn't put all their eggs in one basket, as those diversifying into a wider variety of crops or livestock receive more consistent year-to-year incomes - as do those who reduce their use of fertiliser and pesticides.

Lead author and PhD student, Caroline Harkness said: "Farmers are facing increasing pressures due to changes in climate, government policy and prices. Instability in farm income can be a real challenge. It was interesting, and encouraging, to find that farms adopting environmentally friendly practices also had more stable incomes.

"Farmers may be benefiting financially from their environmental management, while in contrast an increase in direct payments per hectare was associated with less stable farm income.

"Environmentally friendly farming practices including engaging in agri-environment schemes, diversifying outputs, and reducing the use of chemical inputs such as fertiliser and pesticides, are associated with ecological and environmental benefits and importantly could also increase the stability of farm income."

The researchers examined data from the Farm Business Survey for 2333 farms in England and Wales, between 2007-2015, for a range of different farm types.

Using statistical models, the team examined the effect of farming practices and subsidies on the stability of farm income, and their relative importance over the nine-year period.

An increase in direct subsidies paid to farmers based on the area farmed was associated with less stable farm income, across most farm types.

In contrast, dairy, general cropping and mixed farms that received more agri-environmental payments had more stable incomes in the short and medium-term. However, farms in the so called Less Favoured Areas - predominantly upland farms who graze sheep or cattle, do not see the same stability benefits from agri-environmental payments.

Ms Harkness said: "Farms in the uplands are already operating in challenging environments and many of the options in agri-environment schemes may not be available or well suited to deliver ecosystem service benefits in these landscapes."

The results also showed that greater diversity in crop and livestock activities increased the stability of farm income, in dairy, general cropping, cereal and mixed farms - but this was not an important factor for farms that primarily graze livestock.

"Increasing diversity of outputs could make farm businesses more resilient to economic shocks or price fluctuations," says Ms Harkness.

Reducing the input intensity also seems to be an important factor increasing the stability of income for all farm types, she added.

“With rising input prices, a concern of many farmers is to control the use of expensive inputs. Whilst farms with higher input costs are more likely to have higher outputs this does not always translate to a higher farm business income, and these farms also saw larger fluctuations in income.”

Dr Jake Bishop, Lecturer in Crop Science and Production from the University of Reading’s School of Agriculture, Policy & Development said: “Our latest research is interesting as it shows that farms that were adopting environmental management actually benefitted financially from their stewardship. This is encouraging news for farmers as the UK moves to the Environmental Land Management scheme.

“Diversifying outputs and more efficient use of agrochemicals is also associated with environmental and ecological benefits, including for soils and pollinators, these benefits may have translated into more stable farm incomes over the nine years we examined.”

Publication :

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