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Managing crop planning complexity on diversified direct selling farms

The systemic approach of organic market gardeners



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CONTEXT



Diversification and direct selling can improve social, economic and environmental **benefits** of farming systems

BUT

increase the **complexity** of crop planning: spatial and temporal allocation of crops within the farming land along the production season.



OUR QUESTION :

Which strategies are implemented by organic market gardeners to manage this complexity ?

A MULTIPLE-CASE STUDY

- 12 organic market gardens in northern France producing from 30 to 80 plant types on an acreage from 0,5 to 2 ha
- Different combinations of commercial forms: vegetables boxes (CSA), retail selling on-farm, in markets or shops
- Qualitative analysis of semi-structured interviews to approach farmers' strategies

A SYSTEMIC STRATEGIC APPROACH FOR A COMPLEX PROBLEM

Adapting selling methods

Using complementarity of selling channels

Ex: A retail selling system can buffer excess vegetables from vegetables boxes system

→ less precision in quantity planning

Using the heterogeneity of consumer's tastes

Ex: Promoting vegetables exchanges between consumers of CSA systems if they wish a different proportion of some vegetables.

→ less precision in proportions planning

Aggregating crops in management groups

Grouping crops spatially according to management criteria such as botanical family, cropping season, irrigation or fertilization needs.

Ex: Summer vegetables are grouped in the same field. In september, the whole field is free and winter green manure can be sown in one go.

→ Easier management and less displacement



Intertwined set of crop planning objectives

Matching selling requirements

Providing weekly from 5 to 15 vegetables types with acceptable level of diversity and proportion along the year.

Limiting physical and mental workload

Relieving the cognitive pressure of complexity and limiting displacement on the farm.

Maintaining plants health and fertility

Limiting disease/pest pressure and matching soils nutrients offer with plants needs.



Differentiating planning requirements

Distinguishing "key vegetables" (KV) strongly expected by consumers and "complementary vegetables" (CV). Only KV are strictly planned (before the season, with safety margins).

Ex: Tomatoes are KV and planned one year ahead whereas radishes are short cycle CV which can be sown between two crops (multiple or relay cropping possible) depending on opportunities

→ less crops to plan in advance

Easing rotation criteria strictness

Building up the immune function of the agroecosystem to be flexible with rotation.

Ex: Combining resistant varieties, multiple cropping, agroforestry and ecological infrastructures

→ ease the brainteaser of rotation with 80 plants

Distinguishing between "sensitive vegetables" (SV) and "less sensitive vegetables" (LSV) to sanitary disorders. Classic rotation criteria are strictly followed only for SV.

CONCLUSION

This multiple-case study shows that organic market gardeners combine commercial, technical and ecological strategies to manage the complexity of crop planning complexity in diversified direct selling systems. Further investigation would be required in order to see in what extent these strategies impact the global social, economic and environmental performances of the farms.