**DETERMINANTS OF CROP ROTATION CHOICES BY PIG FARMERS IN BRITTANY**

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**Context and Issues**

- Pig farms are defined by their herd management (number of animals and batches) rather than their land management (cropping plan)
- Interactions between herd and land management are often not studied
- In Brittany, pig farms have on average 65ha of cultivated area

*Is the classical description of the pig farms useful for understanding the land management? What are the others explaining factors of land management?*

**Conclusions**

- Three kinds of cropping plans identified: Wheat and Maize, Forage Production, Diversified
- Cropping plan choice:
  - Not linked to herd size or number of batches
  - Main factors are structural: presence of a dairy herd or of a feed production unit on farm
  - Agronomy, economy, effluent management, land configuration, work are also involved
- Point out:
  - Priority given to dairy herd feed
  - Lack of cultivated area of specialized pig farms to produce the feed and their simplified cropping plan

**Material and Methods**

28 swine farms were surveyed in Brittany. The sample is heterogeneous in size (from 130 to 1260 sows and from 24 to 270 ha of agricultural area), in effluent management and in existence of a feed production plan on farm.

Data were analyzed by a content analysis and by principal component analysis (PCA) with hierarchical clustering.

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**Content Analysis: reasons for cropping plan**

- Farm needs
  - Feed and litter of farm herds
- Effluent management
  - Regulations on spreading and stocking capacity
  - Crop rotation and distribution
- Spatial distribution of farm parcels
  - Accessibility for grazing, distance to the farm shed, size and shape of parcels

**Groups identified by PCA and hierarchical clustering**

<table>
<thead>
<tr>
<th>Cropping plan</th>
<th>Maize and Wheat</th>
<th>Forage production</th>
<th>Diversified</th>
</tr>
</thead>
<tbody>
<tr>
<td>% agricultural area</td>
<td>15 farms</td>
<td>10 farms</td>
<td>3 farms</td>
</tr>
</tbody>
</table>

**Groups: Maize and Wheat**
- Wheat 37.8%
- Grain Maize 37.8%
- Grassland 12.8%

**Groups: Forage production**
- Grain Maize 19%
- Forage Maize 14%
- Wheat 19%
- Barley: 22.7%

**Groups: Diversified**
- Rapeseed 20.3%
- Wheat 30.9%

**Type of farms**

- Specialized pig farms with feed production facilities: Produce the feed for pigs
- Farms with pigs and dairy herds: Produce the forage for the dairy herd
- Specialized pig farms with crops for selling only: Specific reasons for each farms, including price and agronomy

**Perspectives**

- Which consequences on farm durability of those cropping plans?
  - Capacities to cope with drought, subsidies dependency, facility of manure management ...
- Which effects on biodiversity and economy at the landscape scale?
  - Simulate landscapes with one cropping plan or mixing cropping plans

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