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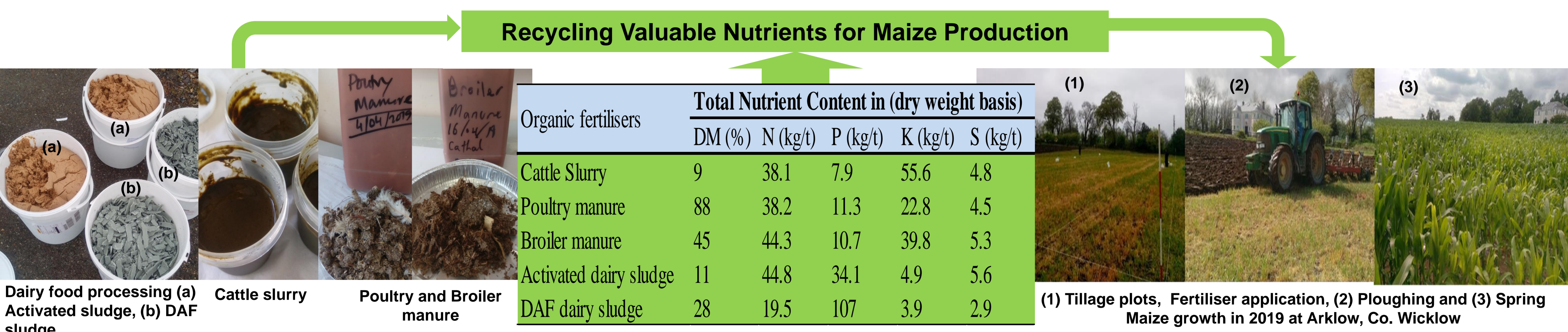
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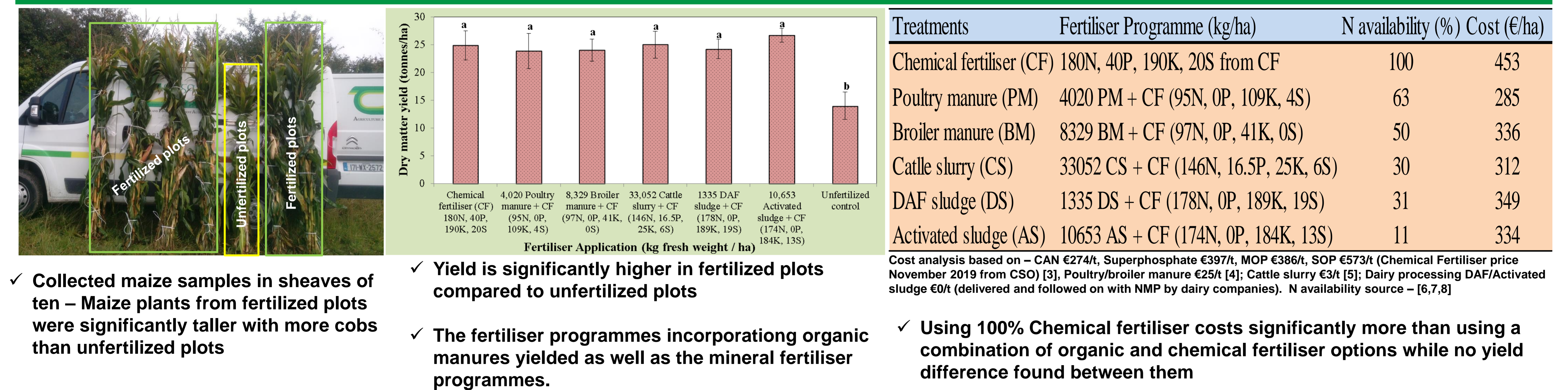
Introduction and Rationale

- Cropping systems provide the grains which underpin the nutritional requirements of many animal production systems. These grains carry nutrients from the croplands, concentrating them on animal farms. Commonly, by-products from dairy and poultry supply chains are nutrient-rich cattle slurry, dairy food processing sludge, poultry and broiler manure, used as organic fertiliser.
- To close nutrients (N, P, K, S) cycling it is important to return these nutrients to the croplands. Balanced use of organic-inorganic fertilization showed the potential for higher crop yield, reducing chemical based fertiliser usage, and improving soil quality [1, 2].
- Farmers need to know an appropriate application rate of organic fertilisers with combination of chemical fertilisers. Limited study is available in the Irish condition to assess the impact of balanced organic and chemical fertiliser application on the crop yield and soil quality considering closing the C, N and P loop in agro-ecosystem.
- The objective of this study was to assess agronomic benefits of using cattle slurry, dairy sludge and chicken manure in conjunction with chemical fertilisers on spring maize production in order to facilitate farmers' understanding to use these options and to replace chemical fertilisers.

Organic Fertilisers and Spring Maize Trial



Results



Conclusions

- Significant savings (23–37%) can be made when using organic fertilisers in conjunction with chemical fertilisers – farmers can save up to €168/ha when using poultry manure as part of their fertiliser programme for Spring Maize production.
- Although nutrient content of different organic fertiliser options varies, an appropriate balanced fertiliser programme using organic and chemical fertilisers can give similar yield and more sustainable profit if the nutrient content and requirement is known.
- Future studies in this trial will look into crop nutrient uptake and benefits on soil quality for nutrient distribution, carbon and organic matter build up.

References

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