



# Monitoring and Control of Good Agricultural and Environmental Conditions

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## Monitoring and Control of GAECs

- New EU farm subsidy Cross Compliance requirements for keeping land in Good Agricultural and Environmental Condition
- In England, GAECs have been defined by the RPA in consultation with relevant industry and interest groups to give wide ranging and important environmental benefits
- There are 17 specific GAECs concerned with the management of soils, habitats and landscape features
- EU regulations require the monitoring and control of compliance of GAECs, and a pilot study has been carried out to determine the potential for the extending the current remote sensing control of agricultural cropping to include GAEC controls



## GAEC Specifications

17 Specific GAECs defined to give wide ranging environmental benefits

<b>Soil Management and Protection</b>	GAEC 1	General requirements
	GAEC 2	Post-harvest management of land after combinable crops (from harvest to 1 march)
	GAEC 3	Waterlogged soil
	GAEC 4	Burning of crop residues
<b>Maintenance of Habitats and Landscape Features</b>	GAEC 5	Environmental Impact Assessment – uncultivated land and semi-natural areas & forestry
	GAEC 6	Sites of Special Scientific Interest (SSSI)
	GAEC 7	Scheduled monuments
	GAEC 8	Public rights of way
	GAEC 9	Overgrazing and unsuitable supplementary feeding
	GAEC 10	Heather and grass burning
	GAEC 11	Control of weeds
	GAEC 12	Eligible land which is not in agricultural production
	GAEC 13	Stone walls
	GAEC 14	Protection of hedgerows and water courses
	GAEC 15	Hedgerows
	GAEC 16	Felling of trees
	GAEC 17	Tree preservation orders



## Soil Management and Protection

GAEC No.	Requirement	Potential for RS Check
<b>1. General requirements.</b>	Farmers must retain a copy of the Administration's Guidance for Soil Management booklet, draw up a risk-based soil management plan and implement it.	Office requirement to draw up plan. Contents of plan are farm specific. Possibly some potential to identify evidence of soil erosion, flooding related to soil compaction, etc.
<b>2. Post harvest management of land after combinable crops.</b>	After harvesting oilseeds, grain legumes or cereals by combine or mower, a farmer must, until 1 March in next year, ensure either stubble is left, a rough surface is left, or a crop cover is sown.	Need to be able to identify fine seed beds. Impractical to monitor contraventions.
<b>3. Water logged soil</b>	Mechanical field operations are prohibited on areas of waterlogged soil.	Impractical to identify soil moisture status except where surface water.
<b>4. Burning of crop residues</b>	Farmers must not burn cereal straw/stubble, residues of oilseed rape, peas or field beans harvested dry. Linseed residues may be burned under restrictions.	Some potential using images in the period directly after harvest. Difficult to catch contraventions because ploughing normally takes place very soon after burning.



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## Summary of Capability of Remote Sensing for the Management of Habitats and Landscape Features

- Excellent for identifying changes in physical landscape features such as hedgerows, trees, wall, buildings (by comparing different year images)
- Some potential to identify non compliance in relation to the condition of habitats and landscape e.g. the maintenance of public rights of way, avoiding overgrazing, and maintaining the condition of eligible land and protected features
- Unrealistic for the identification of short term operations related to husbandry, such as spraying and fertiliser application, and the date of hedge cutting



## Possible Role of Remote Sensing in GAEC Checks

- Remote sensing has a unique role to play in identifying changes by comparing features on 2 dates
- Able to identify a significant proportion of non-compliance data relating to GAEC 5 to 16 conditions to target and assist field inspection effort
- Remote sensing could be used as a first stage check, but all farms still need to be visited to complete the full range of checks
- Multi-year images needed (archival aerial photography or VHR)
- Primarily a photo interpretation task, but some possible use of automated change detection techniques