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## The problem: Soil erosion

The timing, frequency and method of tillage have a major influence on erosion and soil loss and soils. For example, soils under autumn tillage in areas exposed to erosion (e.g., sloping areas) are more susceptible to soil and nutrient losses compared to soils with a plant cover or stubble.

## About the measure

No tillage in autumn means that cropland areas are left as stubble fields throughout the winter. Reduced tillage is an efficient measure of preventing soil erosion, and particle and nutrient loss from cropland to watercourses. The measure will contribute to increasing organic matter content, which may

lead to increased aggregate stability of the soil. In addition, higher biological activity may improve the soil structure.



Stubble field in Kråkstad catchment,  
April 2022 (Photo: A-G.B. Blankenberg)

## Different policy instruments related to the measure

Changed tillage practices are voluntary measures supported by Norwegian policy under the Regional Environmental Programme (RMP). The level of subsidy are based on erosion risk of the area. In exposed watersheds, (ex. drinking water supply) farmers are obliged to implement stricter management practices including reduced tillage.

	Policy & incentive	Regulation document	Authority & support
Mandatory / Voluntary	Included in the list of voluntary measures	Guidelines from directorate Group for Implementation of water regulation	Norwegian Environmental Agency (Miljødirektoratet)
	Obligatory in the exposed watersheds (min 60% area under reduced tillage)	Environmental requirement (Miljøkrav)	County Governor (Statsforvalteren)
Economic support	Subsidies for changed tillage practices, like direct sowing, tillage in spring etc.	RMP	County Governor (Statsforvalteren) Municipality
Advisory service	Public support, research institute support	Regulation on RMP §35. Climate advisory Public agricultural advisory service	Municipality Ministry of agriculture and Food (LMD) Norwegian Agriculture Advisory (NLR), Norwegian institute of bioeconomy research (NIBIO)

Possible solution – grassed waterways

## Examples of benefits of the measure

The table below presents examples of benefits observed with the reduced tillage, based on the [WOCAT documentation](#) of the measure.

Impact level	Benefits	Examples of beneficiaries
Local level	Reduce soil erosion/soil losses	Farmers, soil conservation
	Improve infiltration/retention capacity	Farmers, water management
	Nutrient losses	Farmers
Sub-basin	Increase retention in the landscape	Farmers, local communities, fishers, drinking water management, local wildlife
	Prevent soil losses	Farmers, local communities
River basin	Improve water quality (eutrophication)	People in the river basin, regional food production and environment
	Prevent land degradation	

It is of importance to keep in mind the potential for increased amounts of weeds and diseases (incl. fungi) when practicing this measure. The soil may also develop a rather dense structure over time if the climate is humid.



Spring plowing in the Kråkstadelva catchment, April 2022 (Photo: A-G.B.Blankenberg)

## Resources

### Advisors and other actors:

County Governor (Statsforvalteren), Norwegian Environmental Agency (Miljødirektoratet), Norwegian Agriculture Advisory (NLR), Norwegian Institute of Bioeconomy Research (NIBIO)

### Examples of websites and document:

<https://nibio.no/tema/miljo/tiltaksveileder-for-landbruket/vannmilljotiltak/grasdekte-vannveier>  
<https://nibio.brage.unit.no/nibio-xmlui/handle/11250/2606382>  
<https://qcat.wocat.net/en/wocat/>