



# Inter-row cultivation for mechanical weed control in winter oilseed rape

WP2, Innovative IPM solutions for winter wheat based rotations

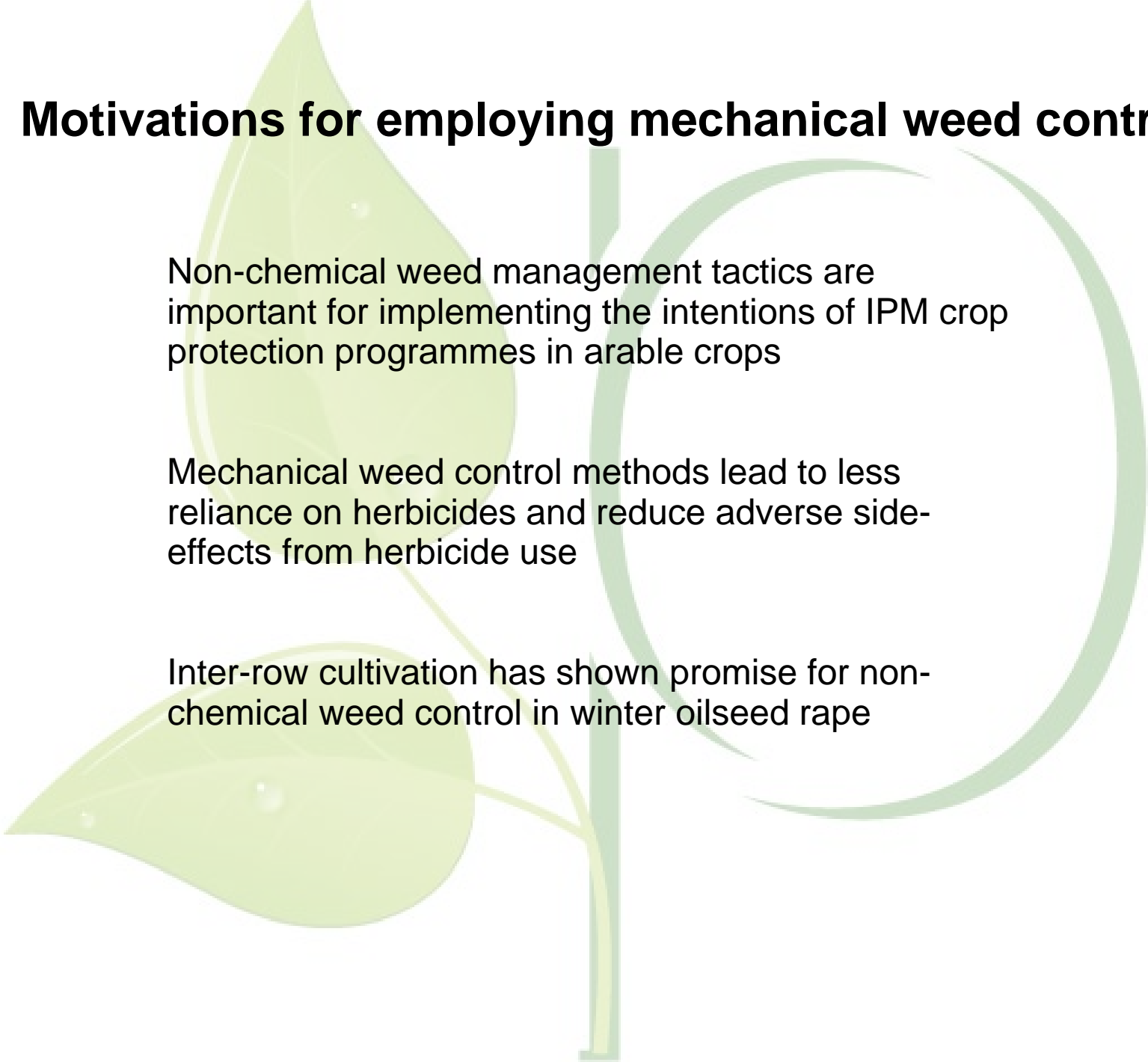


# Motivations for employing mechanical weed control

Non-chemical weed management tactics are important for implementing the intentions of IPM crop protection programmes in arable crops

Mechanical weed control methods lead to less reliance on herbicides and reduce adverse side-effects from herbicide use

Inter-row cultivation has shown promise for non-chemical weed control in winter oilseed rape



# Principal weed species causing problems in winter oilseed rape in Northern Europe



*Poa annua*



*Stellaria media*



*Capsella bursa-pastoris*



*Sinapis arvensis*



*Papaver rhoeas*



*Veronica persica*



*Lamium purpureum*



Volunteer cereals



*Tripleurospermum perforatum*



*Thlaspi arvense*



# Inter-row cultivation requires increased row spacing, preferably 50 cm



Normal row spacing 12.5 cm. (14 October 2011)



Increased row spacing 50 cm. (14 October 2011)



Inter-row hoeing in April 2014



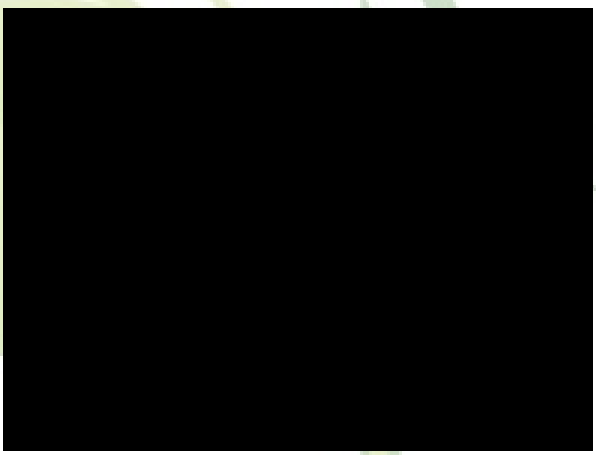
# The implement for inter-row cultivation



Inter-row hoeing in September at an early crop growth stage (oilseed rape with 2-3 true leaves)



Inter-row hoeing in late April using a front-mounted hoe for manual steering



Videoclip of inter-row hoeing in September in the PURE-experiment at Flakkebjerg



## Links to examples of inter-row hoes relevant for inter-row cultivation in winter oilseed rape

Inter-row cultivators with goosefoot shares (blades) including examples of camera-based automatic steering systems:

<http://www.kongskilde.com/Agriculture/Soil/Weed%20Control>

[http://www.einboeck.at/index.php?option=com\\_content&view=article&id=1591&Itemid=665&lang=en](http://www.einboeck.at/index.php?option=com_content&view=article&id=1591&Itemid=665&lang=en)

[http://garford.com/products\\_robotcrop.html](http://garford.com/products_robotcrop.html)

<http://www.steketee.com/category/Mechanische-onkruidbestrijding>



# Weeding strategy for inter-row cultivation in winter oilseed rape

Early autumn, first pass at the 2-4 true leaves stage - mandatory. Use protective discs to avoid covering the crop with soil

Mid-autumn, second pass if necessary. Protective discs may be removed to allow for slight ridging of the crop to suppress intra-row weeds

Early spring, a third pass might be necessary in case of high weed pressure and mild winters. No need for protective discs



# Vulnerability of weeds to hoeing at different weed growth stages

Easy to control, very limited regrowth

Regrowth may take place under wet weather conditions after treatment

*Stellaria media*



*Tripleurospermum perforatum*



*Capsella bursa-pastoris*





# High pressure from competitive intra-row weeds may require chemical weed control



Weedy crop rows can result in yield losses and considerable weed seed shedding – especially volunteer *cereals*, *Tripleurospermum perforatum* and *Papaver rhoeas* can be problematic



Nice and clean crop rows

Use band-spraying for the control of intra-row weeds in order to minimise herbicide input

# Conclusion

Inter-row cultivation for mechanical weed control is an important IPM-tool for winter oilseed rape and can in many case provide sufficient weed control. Supplementary intra-row control with herbicides may be required where competitive weeds and volunteers with an erect growth habit occur in high numbers



Inter-row cultivated oilseed rape on 16 April 2014 – a perfect crop!

