

Plant protection in organic crop rotation experiments

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Weed control: prevention

- ☛ Cultivars which are competitive
- ☛ Late sowing of winter cereals
- ☛ Placing fertiliser close to crops

Optimal mechanical weed control

☛ Spring sown cereals and pulses without catch crops:

- pre-emergence harrowing
- post-emergence harrowing
- supplementary harrowing later if needed





Optimal mechanical weed control

☛ Winter cereal with and without catch crops:

- pre-emergence harrowing if possible
- post-emergence harrowing if possible
- harrowing early spring

☛ without catch crops:

- supplementary harrowing later if needed



Optimal mechanical weed control

- ❧ Winter wheat at Jyndevad and winter cereals in rotation 4 at Foulum, without catch crops, since 1998:
 - sown at larger than normal row distance
 - mechanical hoeing between rows
 - supplementary harrowing
- ❧ Winter cereals in rotation 4 with catch crops:
 - brush hoeing between rows 2-3 times





Optimal mechanical weed control

☛ Sugar beets:

- pre-emergence flame weeding
- hand hoeing in the rows
- mechanical hoeing between rows
- hand weeding

Weed control - perennials

☛ Couch grass:

- without catch crops - stubble cultivation at more than 5 shoots m^{-2}
- with catch crops - stubble cultivation at more than 50 shoots m^{-2}
- cutting the grass-clover more often at more than 5 shoots m^{-2} in the preceding crop

Weed control - perennials

☛ Creeping thistles:

- cut below ground and pulled at the anthesis of the cereals

☛ Others (mugwort, curled dock etc.):

- pulled up at sight

☛ Stubble cultivation in systems without catch crops

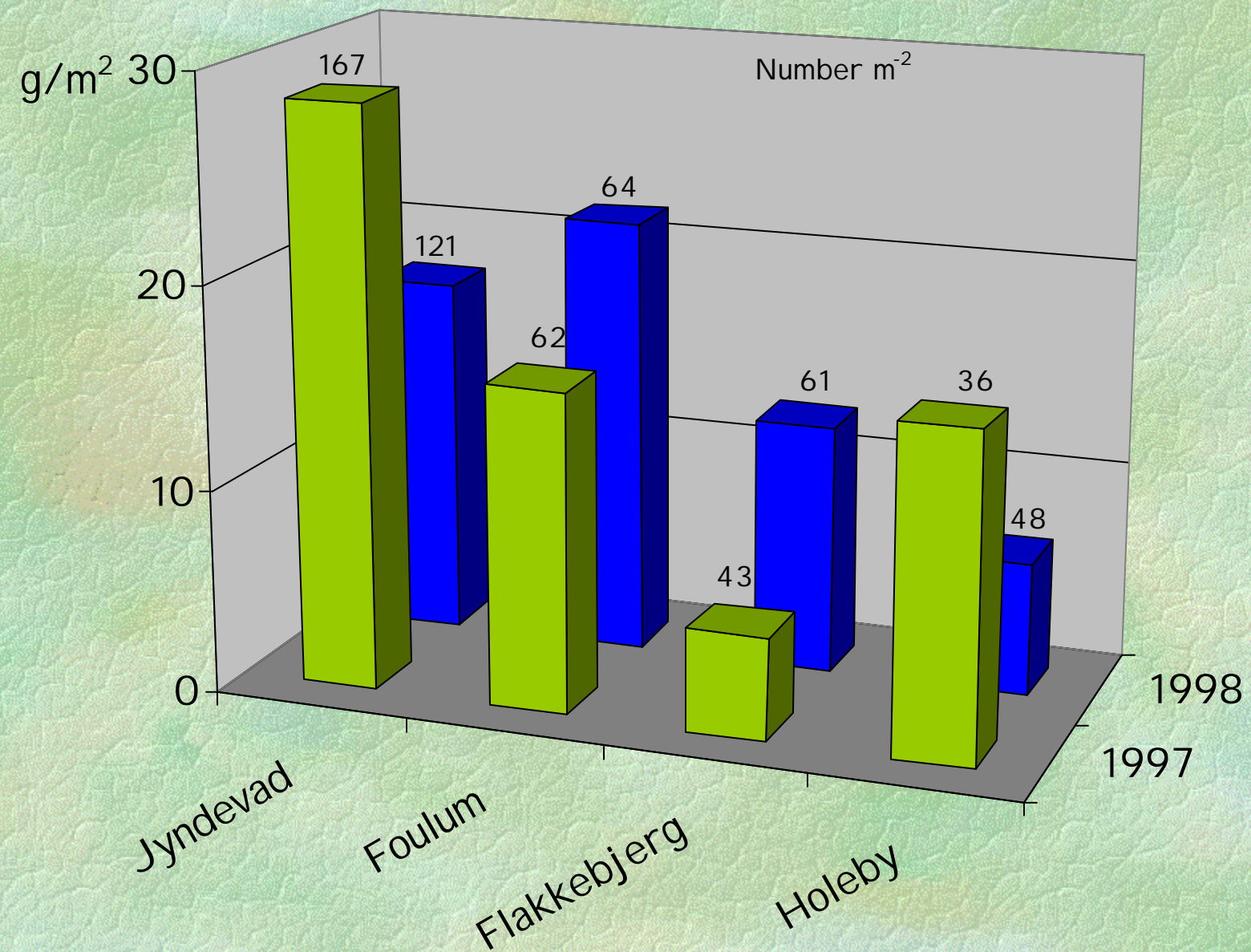
Prevention of diseases

- ☛ Cultivars which are resistant
- ☛ Testing of seed material
- ☛ Least susceptible crops

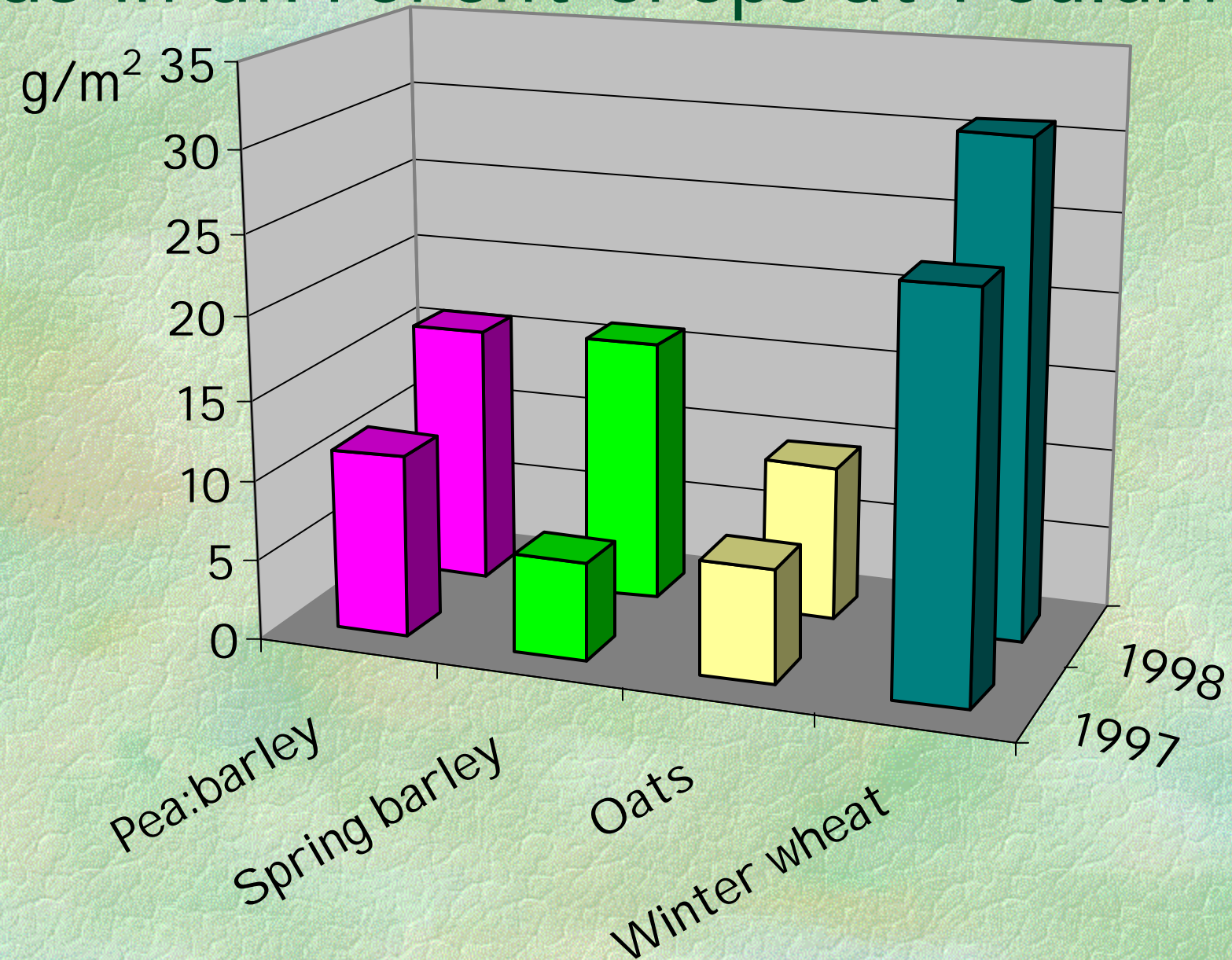
Prevention of insect pests

- Double final plant density sown in sugar beets
- Grass clover sward left uncut in August-September
- Direct control of insect pests:
 - flaming larvae of leather jackets

Weeds at 4 locations 2 years

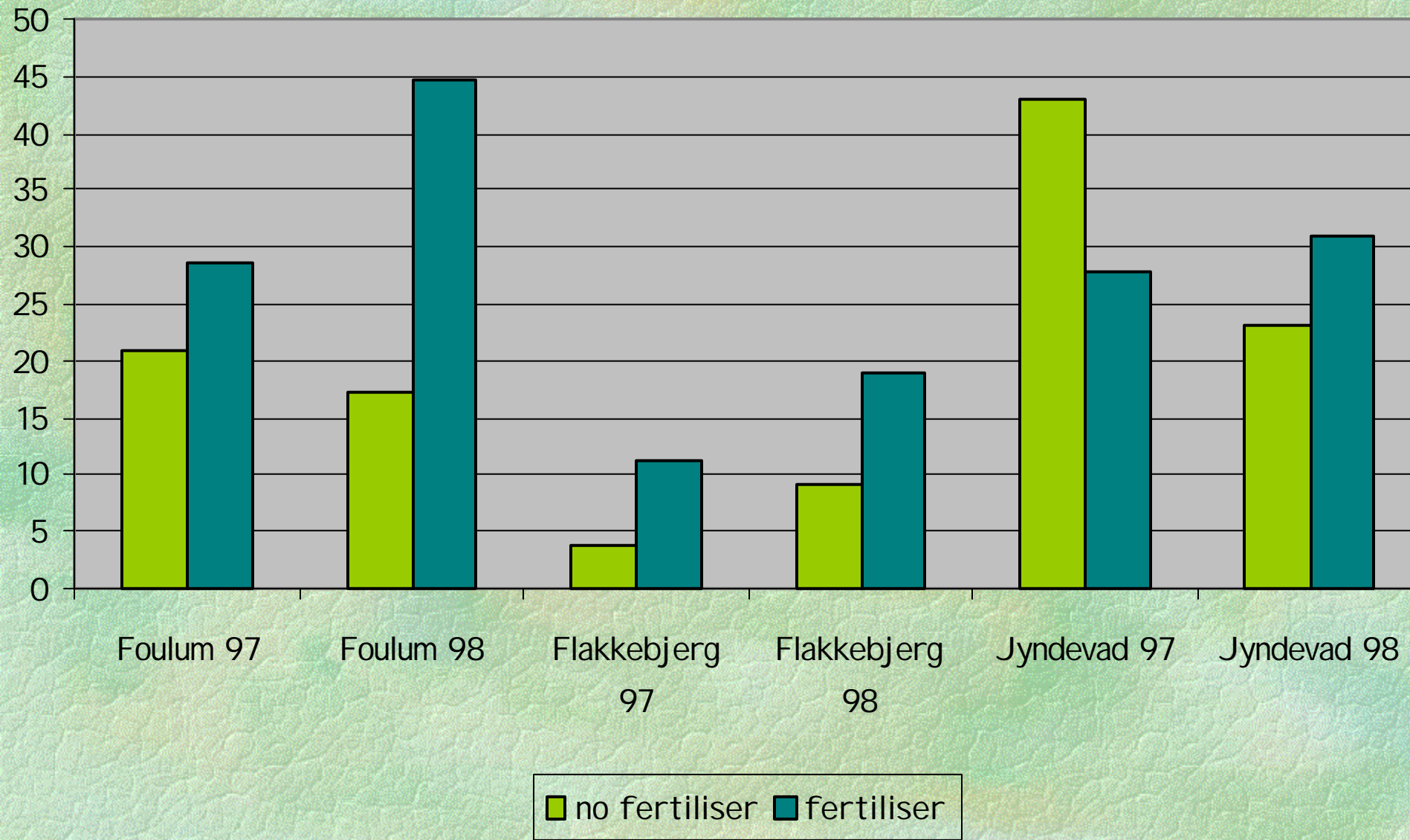


Weeds in different crops at Foulum

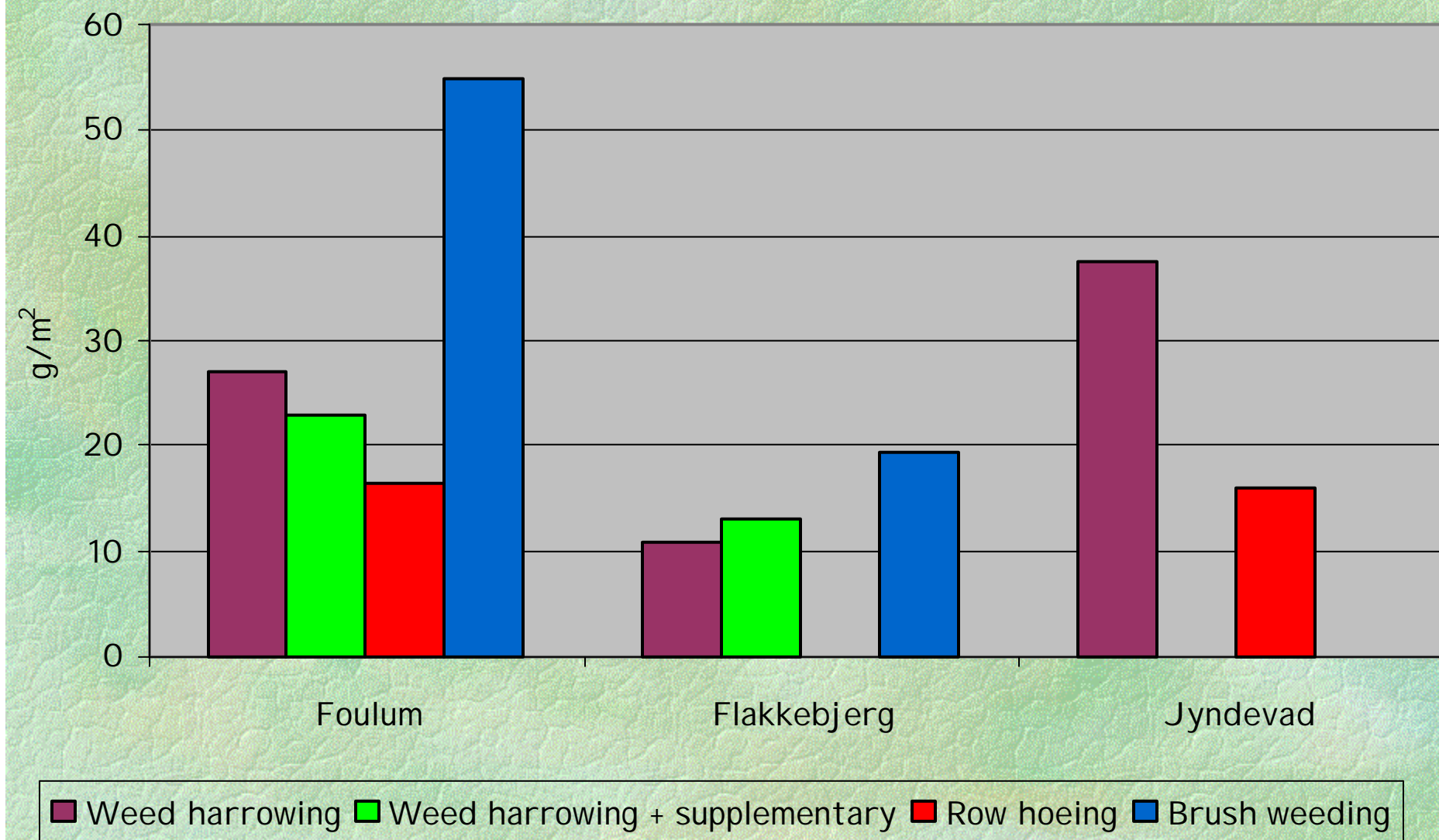


Effect of fertiliser on weeds in winter wheat

g/m²

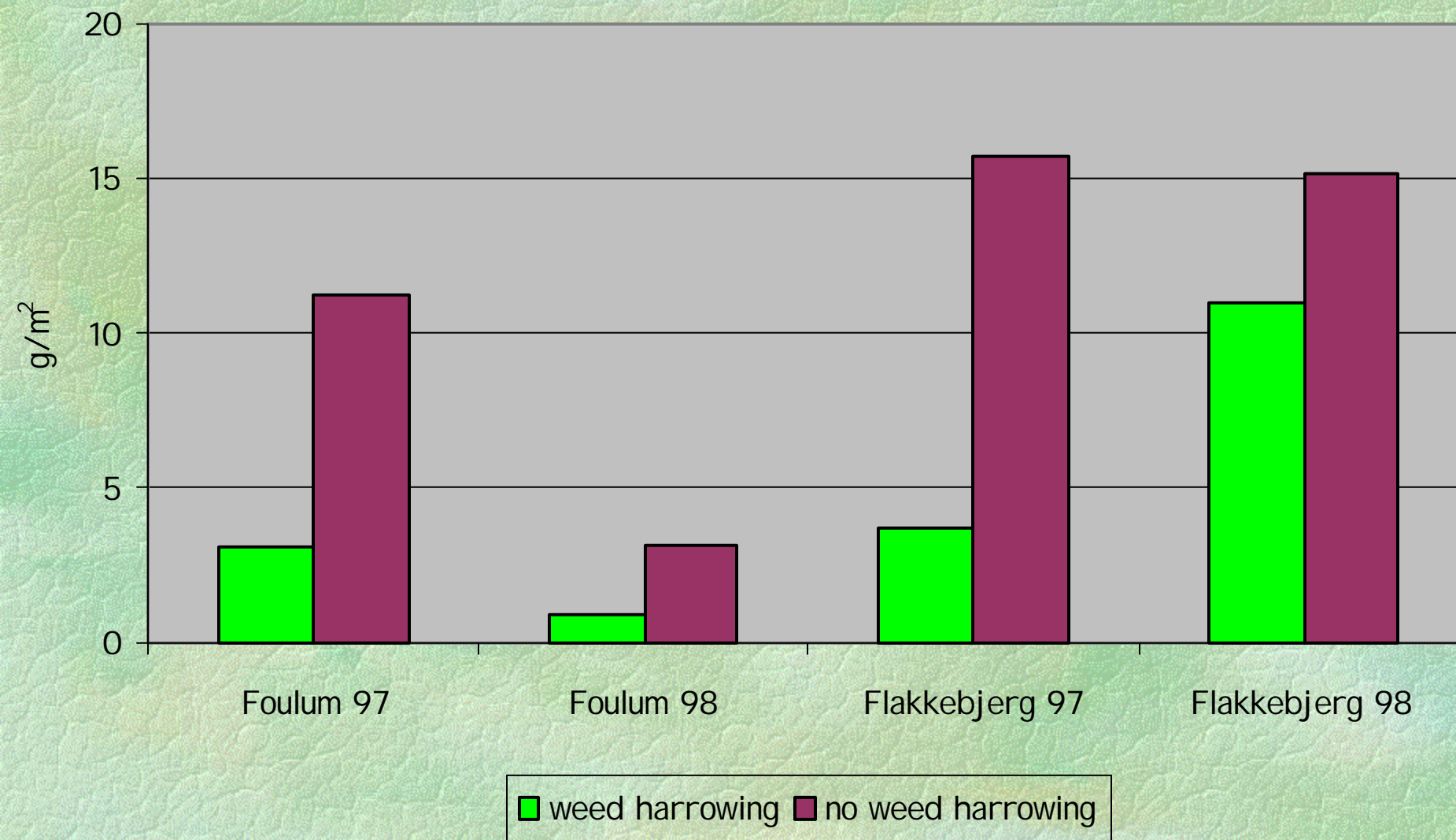


Effect of weed control in winter wheat 1998

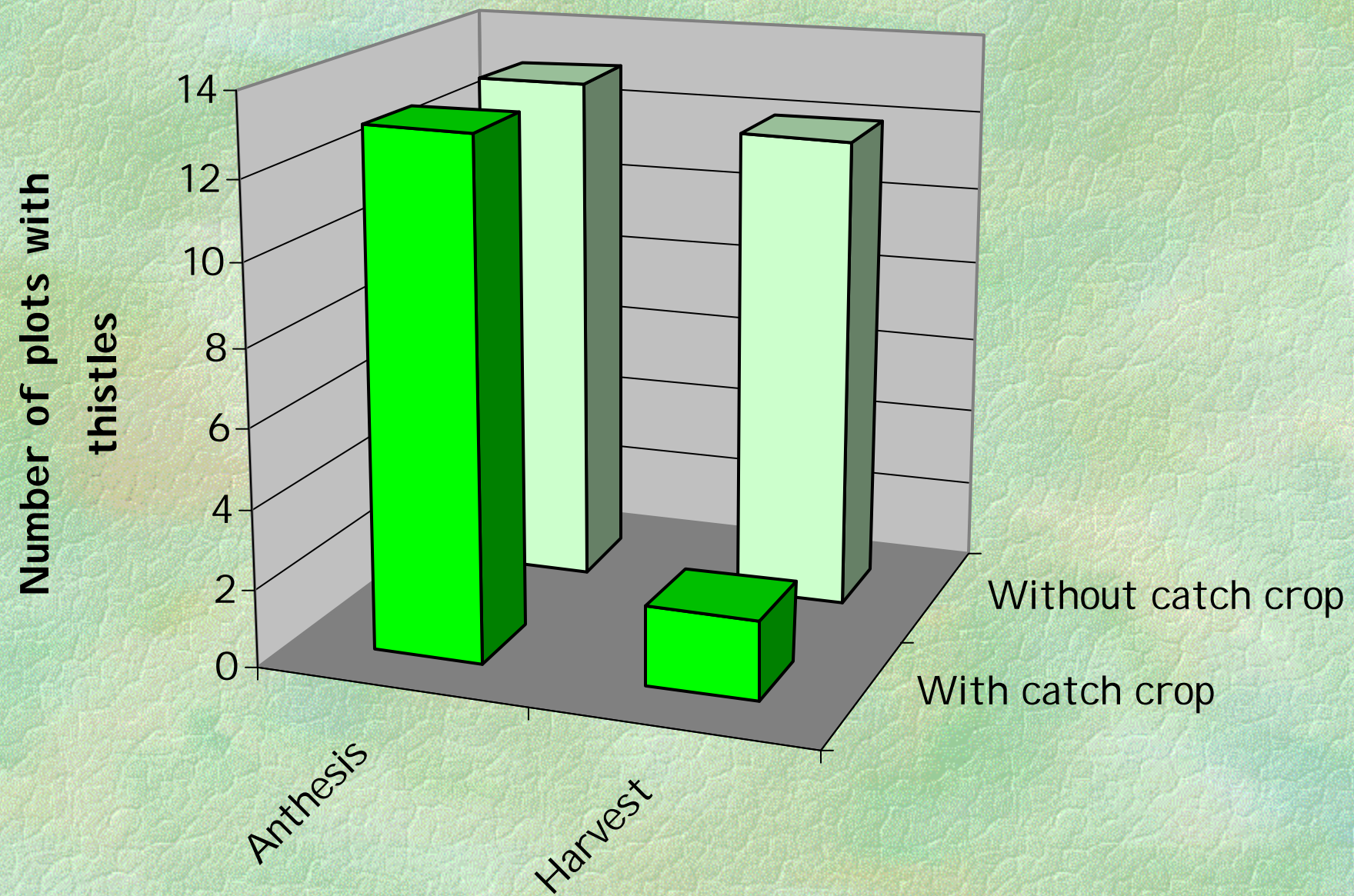




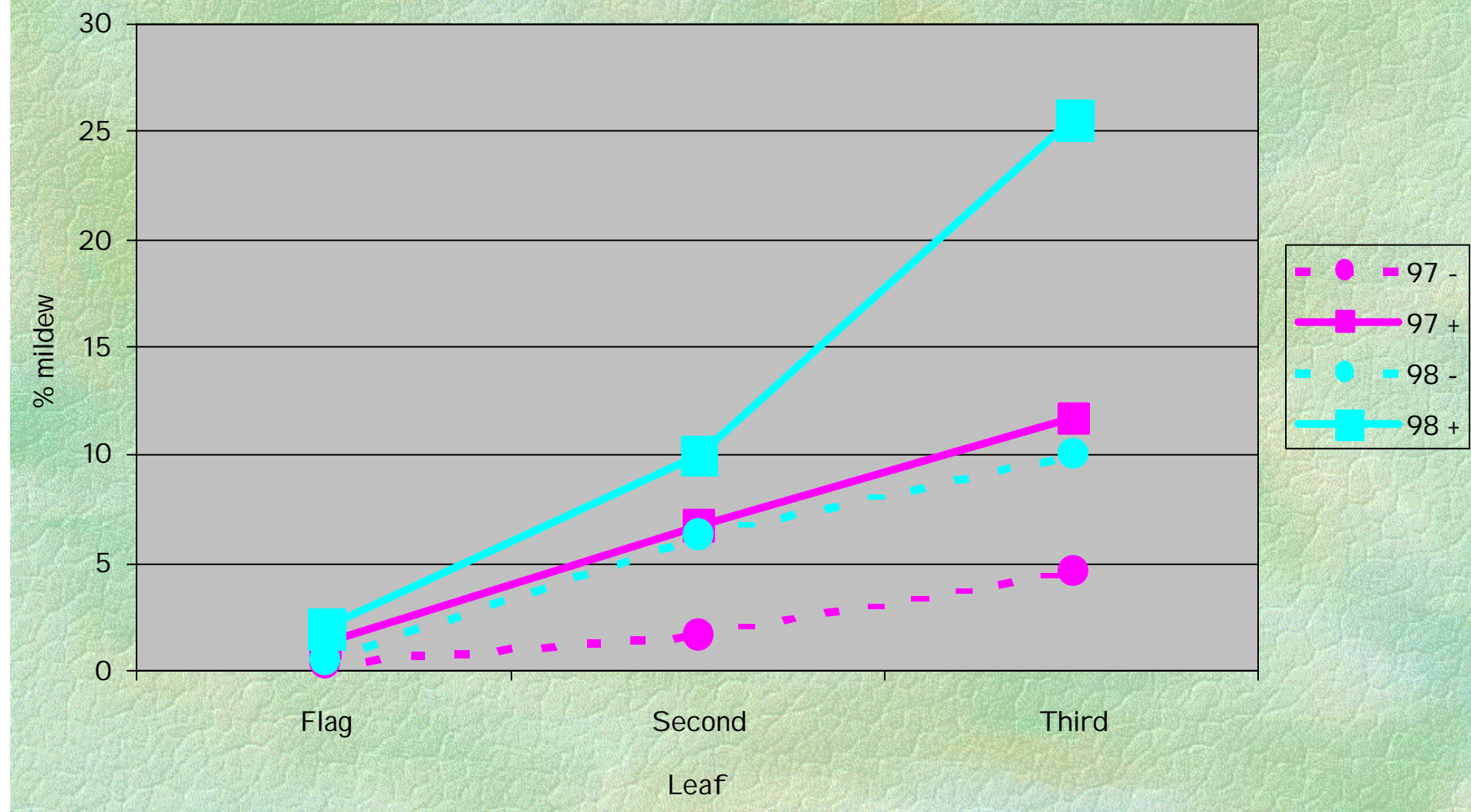
Effect of weed harrowing in oats



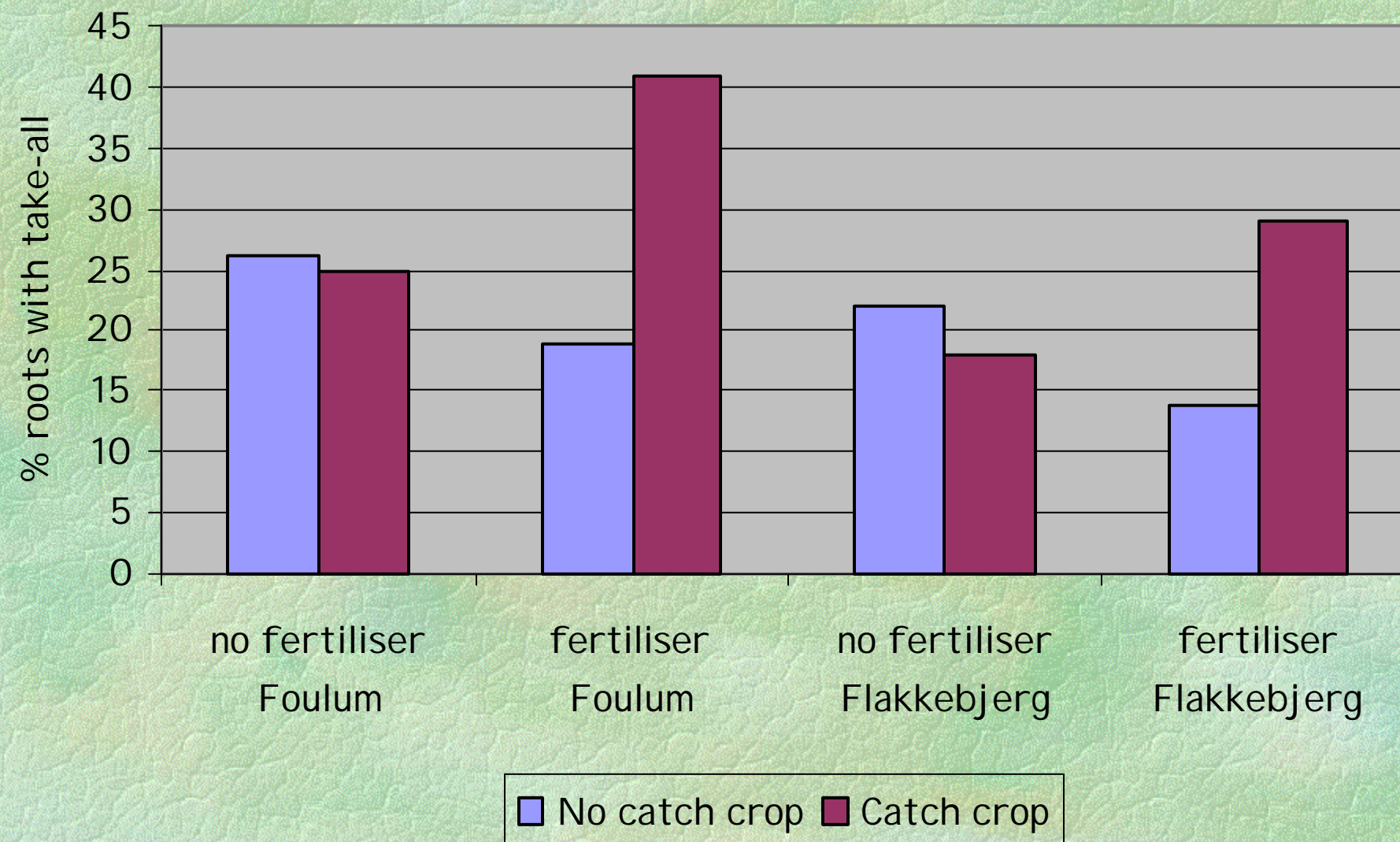
Effect of catch crop on creeping thistle



Effect of fertiliser on mildew in oats at Foulum



Effect of catch crop and fertiliser on take-all in second year winter wheat in rotation 4 1998



Insect pests

☛ no serious attacks

- except leather jacket larvae
- some attacks of aphids in cereals

☛ no differences between treatments

Conclusions

- Differences between treatments -
fertiliser & catch crop
 - weeds
 - diseases
- Differences between crop rotations
remain to be seen