

# PHYSICAL AND CULTURAL WEED CONTROL IN MINOR CROPS

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This paper summarises the major European achievements with physical and cultural weed control methods in minor row crops. Minor crops, such as vegetables, sweet maize and potatoes, present two different situations for physical weed control of entirely different difficulty. Inter-row weeds are easily removed by inter-row cultivation while intra-row weeds, *i.e.* those growing between the crop plants in the rows, still constitute a major challenge aimed at minimising laborious hand weeding. Investigations have focussed on optimising the use of mechanical principles against intra-row weeds, *e.g.* harrowing, brush weeding and finger weeding. These methods have been successful in some transplants, potatoes and maize, and may become alternatives to chemical control. However, in sown crops with low initial growth rates and in general in organic farming, current intra-row mechanical methods have to act in combination with thermal and cultural methods to achieve sufficient control, though some subsequent hand weeding may be needed. As such, methods worth mentioning are: mulching with dead or living materials; intercropping (*e.g.* celery in transplanted leek); optimised crop spatial arrangement (*e.g.* in pigeon bean); and solarisation to reduce soil seed viability. Although the need for hand weeding has been reduced markedly, this is still to be fully achieved. The direction in research has thus moved to new methods. Robotic weeding is now being investigated for row crops with abundant and precise spacing between individual plants, and soil steaming prior to sowing row crops that develop dense crop stands shows promise of effective and prolonged control.