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Global rapeseed yields have increased since the 1960s, however, particularly in Europe, Australia and China, growth rates have stagnated in the past 15 years. A potential reason are biotic constraints through insect pests and diseases which have become a major limitation of productivity in worldwide rapeseed cultivation. A global survey on the present situation of pests and diseases in the four main production regions of *Brassica napus*, Europe, Canada, China and Australia, indicates that there are both some similar trends but also individual differences in the occurrence and prevalence of harmful organisms and the options of control. At present, a total of 28 animal pests (insects/insect groups, nematodes, slugs, birds) and of 16 pathogens (fungi, phytoplasmas, viruses) are known to potentially affect growth and productivity of *Brassica napus*. The survey revealed that at present 24 animal pests and 14 diseases caused by pathogens do occur in any of the four cultivation regions at a level at least requiring monitoring and occasional control. A consistent presence and significant problem requiring regular action exists with eight insect pests and ten diseases worldwide. The insect pests currently considered to be significant threats to production in at least one of the four production regions include aphids (*Myzus persicae*, *Brevicoryne brassicae*, *Lipaphis elisus*), brassica pod midge (*Dasineura brassicae*), cabbage root fly (*Delia radicum*), flea beetles (*Psylliodes chrysocephala*, *Phyllotreta cruciferae*, *Ph. striolata*), pollen beetle (*Brassicogethes aeneus*, *B. viridescens*), rape stem weevil (*Ceutorhynchus napi*), cabbage stem weevil (*Ceutorhynchus pallidactylus*) and cabbage seedpod weevil (*C. obstructus*). Globally significant diseases are *Alternaria* leaf spots, club root (*Plasmodiophora brassicae*), downy mildew (*Peronospora parasitica*), powdery mildew (*Erysiphe cruciferarum*), stem canker and blackleg (*Leptosphaeria maculans*), stem rot (*Sclerotinia sclerotiorum*), light leaf spot (*Pyrenopeziza brassicae*), white leaf spots (*Pseudocercospora capsellae*), white rust (*Albugo candida*), damping-off (*Pythium* sp., *Fusarium* sp., *Rhizoctonia*) and turnip yellows virus (TuYV). Occurrence and damage potential of all eight significant pests and the ten relevant diseases have increased in the past 20 years in at least one region. There are only three cases reported of a decrease in incidence of a biotic constraint during this period, i.e. light leaf spot in Germany, *Fusarium* wilt in Canada and Diamondback moth in China.

The top ten priority list of the most damaging organisms indicates a strong prevalence of insects in all regions of rapeseed cultivation. However, there exist clear geographic differences. Among the four major cultivation regions, Australia displays the most distinct situation. Flea beetles, pollen beetle and stem and pod weevils are major threats in all production regions, except for Australia. Blue oat mite (*Penthaleus* spp.), budworm native (*Helicoverpa* sp.), cabbage webworms (*Hellula undalis*), cutworms (*Euxoa auxiliaris*, *Anarta trifolia*), lucerne flea (*Sminthurus viridis*) and redlegged earth mite (*Halotydeus destructor*) and false wireworms (*Isopton* sp.) are pests exclusively present in Australia. There is no relevance reported for aphids, pollen beetle and brassica pod midge in Canada and for cabbage root fly in China and Australia.

Globally occurring diseases are club root, sclerotinia stem rot and downy mildew. Problems with powdery mildew are restricted to Australia, *Verticillium* stem striping has not occurred in Australia and China so far, stem canker is ubiquitous except for China and light leaf spot and *Mycosphaerella* ring spot are lacking in Australia and China. *Fusarium* wilt and damping-off disease have been so far reported only from Canada.

If not controlled, damage potential of major pests and diseases in the different production regions may result in total losses, but is generally kept to a much lower level by cultural practices and chemical control. However, with the decrease in available or efficient chemical plant protectants, particularly in Europe, pests such as flea beetles, pollen beetles and stem weevils may cause the termination of rapeseed cultivation in some hotspot' areas.

All insect pests including the virus and phytoplasma vectors can be chemically controlled while none may be managed by cultivar resistance. In contrast, chemical control is available for most above-ground fungal diseases but it is lacking for *Fusarium* wilt, *Verticillium* stem striping and club root. Resistance in cultivars is available against stem canker, club root and *Fusarium* wilt. Improved cultivar resistance may be expected in the near future against light leaf spot and *Verticillium*. All pests and diseases are dependent on crop rotation and frequency either on the field or landscape level, while soil management has no such significant impact. The increased frequencies of treatments with fungicides and insecticides in the past 20 years has not been able to stop or slow down the general trend toward enhanced occurrence and establishment of pests and diseases. Widening the crop rotation scheme and lowering the frequency of rapeseed cultivation thus appears to be the most important future strategy to reverse the current aggravating trends in biotic constraints to global rapeseed production.

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