Modelling tools for maize pests risks in agro-climatic zones of central Europe.

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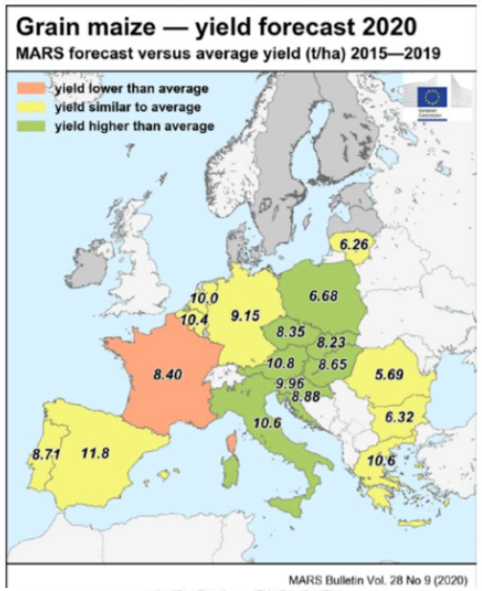
Uneven yields throughout Europe



Active temperature sums
Thermal growing season length

European corn borer (ECB)
Ostrinia nubialis

Western corn rootworm (WCR)
Diabrotica virgifera virgifera

wireworms
(*Agriotes sp.*)

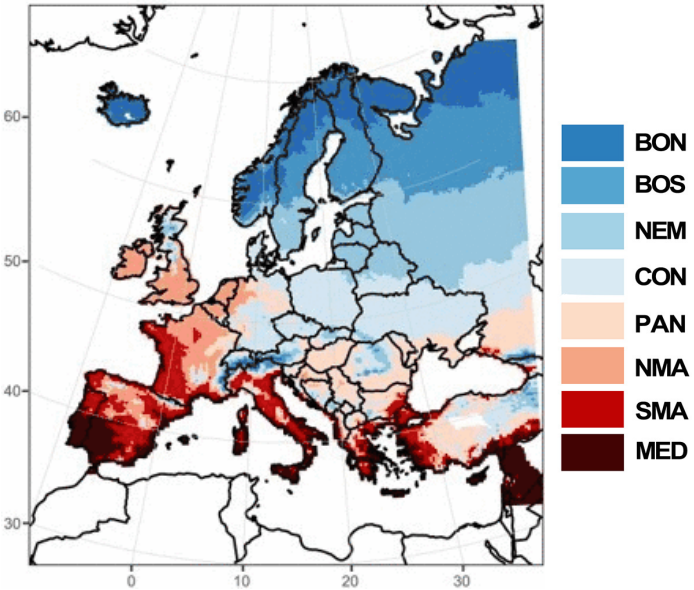
Major drivers:
(i) temperature, photoperiod
(ii) precipitation
(iii) irrigation
(iv) slope
(v) crop & pest management changes

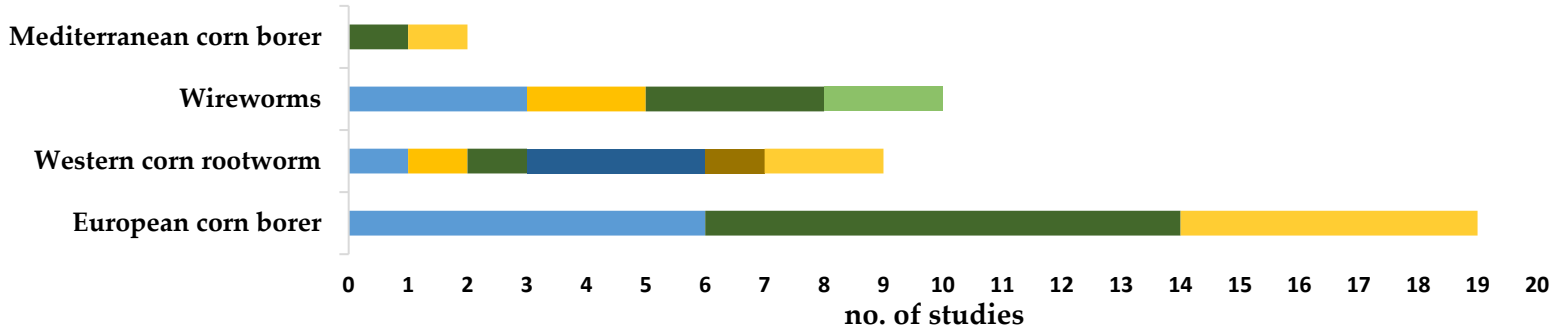
Individual level : growth, reproduction and survival processes (pest phenology i.e. life stages of pests egg-larva-pupae-adult)

Population level : abundance and distribution processes (demographic traits and competitive capacities)

Community level : spatio-temporal dynamics (invasive traits, habitat suitability)

1981-2010





Conceptual modelling framework using dynamic physiologically based demographic pest models for pest risk management options in Maize