



Colloquium 10

Pest risk assessment

Science in support of phytosanitary decision making in the European Community

Discussion Group 2

**Challenges in pest risk assessment:
are climate changes and global trade
influencing the pest introduction potential?**

Day 2

Climate change needs to be considered in PRA because of:

- elongated vegetation period, increased seed production etc.,
- more generations of pests etc.,
- effect on pathways,
- effect on likelihood of establishment.

Are predictions with regard to climate change (temperature, rainfall) accurate enough?

- temporal and spatial resolution may not be sufficiently detailed in some cases
- what is considered as current climate data (1960-1990) may not reflect current situation,
- important to consider recent changes in climatic conditions (last 10-15 years),
- not covered by CLIMEX up to now,
- more detailed calculation in progress.

In addition to temperature and rainfall, other data also important, e.g.:

CO₂ concentration

humidity

solar radiation, solarisation

consequences of climate change on

- **environment (ecosystems, soil...),**
- **landcover,**
- **cultivated crops**

not covered by models adequately up to now

**Important factor:
limits and frequencies of extreme climate
events (esp. winter temperatures) tolerated by
the pest
increased vulnerability of host plants and
ecosystems
Complex situation, factors influencing each
other.
Possible approach: dissection of relevant
factors necessary, synthesis of single results**

Modelling:

Models need to take phenology and life cycle of pests and hosts into account

Models needed for trends in land use, for biomass production, canopy

Prerequisite for good models:

Research on the “basics” of the species.

Models only work well with a good biological basis.

Climate matching used to find out if weather similar in new area with regard to origin. However:

other aspects (host plants, enemies, other factors) may be quite different than in area of origin.

Very difficult to assess impact under different situations in different areas.

Looking at similar organisms, but nevertheless difficult.

Invasiveness elsewhere in another country

Current PRAs concern short time period. This may be too short to take into account average longer term changes in climate; high uncertainty

However, regional and local changes in climatic parameters could be greater than the long term average

Climate change as driver for new opportunities on establishment, especially in climatic boundary situations,

daily temperature sums need to be considered as well

Global trade

Very high increase in trade

important with regard to risk: origin of consignments, type of pest.

Generally: new origins, new pathways, new pests.

Live plants for planting with soil most important risk.

Increase of trade but not the same increase of introduction of pests. Indication that phytosanitary measures work?

Global change: climate change + increasing global trade to be considered together

Climate change increases opportunity of pests to be associated with pathways

Trade provides opportunity for pests to be introduced, climate change increases vulnerability in area concerned could provide basis for establishment

Data on trade:

Data difficult to obtain, often quality not sufficient:

volume and frequency of consignments,

which species (“bedding plants” no info on species).

Better data available on interceptions but also depending on sampling, level of inspection, unregulated movements of risky material.

Considering situation from a retrospective point of view: generally PRAs sufficiently robust, detailed review of past experience could give more clarity

for certain pests revision of PRAs necessary, frequency revision depending on pest and situation

PRA only focus on known/listed organisms, doesn't take account of other organisms that could pose a risk

global change will increase need for PRA and increased need for research (e.g. adaptability of host-pest-interactions, development of generic principles, effects of climate on host plants, pests, ecosystems)

More generic pathway initiated PRAs needed