CABI Pest Risk Analysis Tool

Template of risk assessment questions and risk management options

Risk Assessment and factors to consider

A risk assessment should be completed for all pests potentially requiring phytosanitary measures

The risk assessment section of the PRA tool is composed of a set of questions, developed in line with requirements set out in ISPM 11 (pp. 11-22).

- They are classified under the following headings:
- Probability of entry
- Probability of establishment
- Probability of spread
- Potential consequences (economic, environmental and social)

Each question can be given a risk rating (High, Medium, Low, Negligible) and a confidence level (High, Medium, Low).

Under each heading, a summary comment, rating and confidence level should be assigned.

Probability of entry

1. What is the probability of the pest being associated with the commodity at origin?

   Factors to consider

   - prevalence of pest in the source area
   - occurrence of life stage able to associate with commodity
   - seasonal timing
   - pest management procedures applied at place of origin

2. What is the probability that the expected volume and frequency of import of the commodity will support entry?

3. What is the probability of the pest surviving during transport?

   Factors to consider

   - speed and conditions of transport
   - duration and vulnerability of life cycle
   - previous interceptions of the pest
   - commercial procedures during transport (e.g. refrigeration)

4. What is the probability of the pest surviving or evading existing pest management procedures?
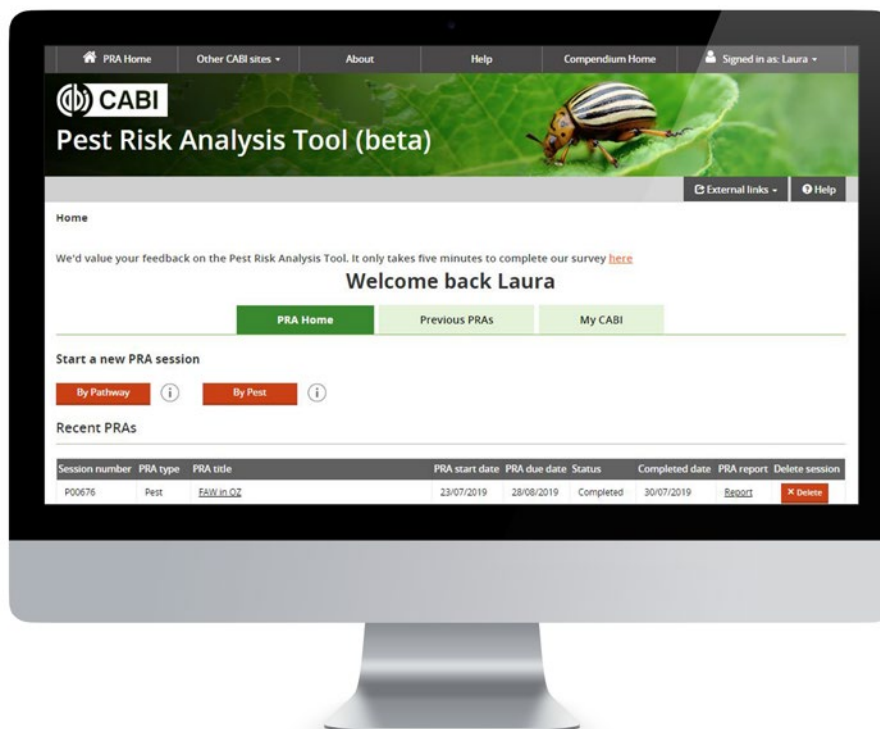
   Factors to consider

   - inspection methods and quality control
   - certification schemes
   - chemical treatment

5. What is the probability of transfer to a suitable host?

   Factors to consider

   - dispersal mechanisms, including vectors
   - number of destinations
   - proximity to suitable hosts
   - seasonality
   - intended use of the commodity (e.g. for planting, processing, consumption)
   - risks from by-products and waste

Probability of establishment

1. What is the probability that suitable hosts are available in the PRA area?

   Factors to consider

   - abundance of main hosts and alternate hosts and how they are distributed
   - geographic proximity of hosts to pathway destinations
   - presence of other suitable plants that could be new hosts

2. If transmitted by vectors, what is the probability that suitable vectors are available in the PRA area?

3. What is the probability that climatic conditions and other abiotic factors will allow the pest to establish in the PRA area?

   Factors to consider

   - compare the known distribution of the pest with ecoclimatic zones in the PRA area
   - whether hosts are grown in protected cultivation
   - soil factors for soilborne pests

4. What is the probability that existing control measures for other pests in the PRA area are unable to prevent establishment?

   Factors to consider

   - cultural practices e.g. irrigation, planting, harvesting methods etc.
   - pest control programmes

5. What is the probability that existing natural enemies in the PRA area are unable to prevent establishment?

6. What is the probability that other biological characteristics of the pest will enable establishment?

   Factors to consider

   - reproductive and survival strategies
   - genetic adaptability
   - minimum population needed for establishment

Probability of spread

1. What is the expected rate of natural spread in the PRA area?

   Factors to consider

   - rate and distance of spread elsewhere
   - natural barriers in PRA area

2. If transmitted by vectors, what is the expected rate of spread by vectors in the PRA area?

   Factors to consider

   - rate and distance of spread elsewhere

3. What is the expected rate of spread with commodities or conveyances in the PRA area?

4. What is the probability of the pest spreading to an area of higher economic importance than the area of introduction?

5. What is the probability that the intended use of the commodity increases the rate of spread?

   Factors to consider

   - whether intended for planting, processing or consumption
   - disposal of waste, by-products
   - number and location of expected destinations

Potential consequences

1. What is the level of economic loss to agriculture, forestry or horticulture associated with this pest in its existing geographic range?

    Factors to consider

    - reduction in crop yield or quality
    - reduction in prices or demand, including export markets
    - increase in production costs (including costs of control)
    - vectoring of other pests of economic importance

2. What is the level of potential economic loss to agriculture, forestry or horticulture in the PRA area?

    Factors to consider

    - reduction in crop yield or quality
    - reduction in prices or demand, including export markets
    - increase in production costs (including costs of control)
    - vectoring of other pests of economic importance

3. What is the level of negative impact on native biodiversity associated with this pest in its existing geographic range?

    Factors to consider

    - threat to native species, with special focus on threatened and keystone species
    - changed community structure
    - hybridization with native species

4. What is the level of potential negative impact on native biodiversity in the PRA area?

    Factors to consider

    - threat to native species, with special focus on threatened and keystone species
    - changed community structure
    - hybridization with native species

5. What is the level of negative impact on ecosystem patterns and processes associated with this pest in its existing geographic range?

    Factors to consider

    - physical modifications of habitats
    - changes in nutrient cycling and availability
    - modifications of natural successions
    - changes in trophic and mutualistic interactions

6. What is the level of potential negative impact on ecosystem patterns and processes in the PRA area?

    Factors to consider

    - physical modifications of habitats
    - changes in nutrient cycling and availability
    - modifications of natural successions
    - changes in trophic and mutualistic interactions

7. What is the level of negative social impact associated with this pest in its existing geographic range?

    Factors to consider

    - unemployment
    - health effects
    - recreation, tourism, education or spiritual impacts
    - aesthetics

8. What is the level of potential negative social impact in the PRA area?

Factors to consider

- unemployment
- health effects
- recreation, tourism, education or spiritual impacts
- aesthetics

Risk Management options

The risk management form can be completed for every pest requiring phytosanitary measures list. The risk management form contains a predefined set of phytosanitary measures that can be assigned to the pest.

The management measures are classified under the following headings:

- At the place of production
- After harvest and during transport
- After entry
- Other

At the place of production

Inspection or testing

Treatment of crop, field or place of production

Specially protected growing conditions

Maintenance of pest free area, place or site of production

Resistant cultivars

Specified harvest time to reduce crop infestation

Certification scheme

Other

After harvest and during transport

Inspection or testing

Post-harvest treatment

Removal of specified parts of the plant

Conditions for preparing and packing and storage

In-transit conditions and treatment

Restriction on period of entry (to reduce availability of susceptible hosts)

Other

After entry

Inspection or testing in post-entry quarantine

Surveillance, containment and eradication

Restriction on end use or distribution

Other

Other

Similar to other pest(s) already addressed

No risk management option identified for this pest