EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION

01/9109
PPM Point 6.1

Pest risk assessment
Rhizoecus americanus

Assessor: JF Germain, France

DECISION-MAKING SCHEME
Stage 1: Initiation

Identify pest

1. Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank?

   Yes (Ben-Dov, 1994, Hernandez Paz, 1965; Marotta, 1995; Williams, 1985; Williams & Granara de Willink, 1992).

2. Attempt to redefine the taxonomic entity so that the criteria under 1 are satisfied. Is this possible?

   Not relevant.

The PRA area

3. Clearly define the PRA area.

   France.

Earlier analysis

4. Does a relevant earlier PRA exist?

   Yes, PRA performed by MGM Jansen, Entomology section, Plant protection service, Netherlands, 2001. (doc. 01/8440, paper only, under the same point of the agenda).

5. Is the earlier PRA still entirely valid, or only partly valid (out of date, applied in different circumstances, for a similar but distinct pest)?

   It can be considered as partly valid: it is necessary to answer the questions raised by this PRA.

6. Proceed with the assessment, but compare as much as possible with the earlier assessment.

   The Dutch assessment is very interesting but very hypothetical. It makes hypothesis on the harmfulness of this pest in Florida, but without justifications based on research results, publications or information from Florida.

Stage 2: Pest Risk Assessment

Section A: Pest categorization (qualitative criteria of a quarantine pest)

Geographical criteria

7. Does the pest occur in the PRA area?

   No. Its distribution is neotropical (Colombia, Costa Rica, Cuba, Ecuador, Honduras, Jamaica, Martinica, Mexico, Panama, Porto Rico, Trinidad, Virgin islands) and nearctic (Florida) (Ben-Dov, 1994)

   R. americanus was described once in Italy (Russo & Mazzeo, 1992) on roots of Saintpaulia spp. in an experimental station, and has never been observed since. Therefore, it cannot be considered as present, and even less established, in Italy.

8. Is the pest of limited distribution in the PRA area?

Not relevant.

Potential for establishment

9. Does at least one host plant grow to a substantial extent in the PRA area, in the open, in protected conditions or both?

   Yes. R. americanus is a polyphagous species and many host plants occur in the PRA area (Aralia, Asparagus, Chrysanthemum, Diffenbachia, Ficus, Gardenia, Hibiscus, Lantana, Phoenix, Saintpaulia, Strelitza etc.) (Ben-Dov, 1994).

10. Does the pest have to pass part of its life cycle on a host plant other than its major host (i.e. obligate alternate host plant)?

    No.

11. Does the alternate host plant also occur in the same part of the PRA area as the major host plant ?

    Not relevant.

12. Does the pest require a vector (i.e. is vector transmission the only means of dispersal)?

    No.

13. Is the vector (or a similar species which is known or suspected to be a vector) present in the PRA area or likely to be introduced. If in doubt, a separate assessment of the probability of introduction of the vector (in section B1) may be needed.

    Not relevant.

14. Does the known geographical distribution of the pest include ecoclimatic zones comparable with those of the PRA area?

    No. See in Appendix II the comparison of 4 meteorological stations of the Mediterranean coast of France to 4 stations in Florida. Hamon (2001, pers. com.) writes: " I do remember identifying R. americanus from just the North of Orlando and areas south, but I am not sure about North Florida. Most of our root mealybug activity recently has revolved around R. hibisci, mostly from the Miami area". For Hernandez Paz (1965), relative humidity is an important factor for the development of this species. He writes: "mealybug colonies thrived best under high temperature and high humidity. High temperature and low humidity were detrimental to their development". Those three information allow to bound the distribution of R. americanus to humid tropical areas.

15. Is it probable, nevertheless, that the pest could survive and thrive in a wider ecoclimatic zone that could include the PRA area?

    No.

16. Could the ecoclimatic requirements of the pest be found in protected conditions in the PRA area?

    Yes.

17. Is a host plant grown in protected conditions in the PRA area?

    Yes. Very many host plants are grown under protected conditions.

Potential economic importance

18. With specific reference to the host plant(s) which occur(s) in the PRA area, and the parts of those plants which are damaged, does the pest in its present range cause significant damage or loss?

    No. In Florida, R. americanus is not considered as an economic pest, unlike for example R. hibisci. Hamon AB writes: "In my 25 years doing scale insect identifications in Florida, I have not observed Rhizoecus americanus being much of a pest. Which is not the case with R. hibisci. We have had control problems with R. hibisci, but I can not remember ever giving a control recommendation for R. americanus (Hamon, pers. com., 2001)

19. Could the pest, nevertheless, cause significant damage or loss in the PRA area, considering ecoclimatic and other factors for damage expression?

No, according to ecoclimatic factors. The absence of published studies on this species confirms this negative answer.

20. Would the presence of the pest cause other negative economic impacts (social, environmental, loss of export markets)?

No.

21. **This pest could present a risk to the PRA area**

No.

22. ***This pest does not qualify as a quarantine pest for the PRA area***

References

Ben-Dov Y (1994) A systematic catalogue of the mealybugs of the world (Insecta: Homoptera: Coccoidea: Pseudococcidae and Putoidae). Intercept Ltd. Andover. 686 pp.

Hernandez Paz MR (1965) Observations on the biology of the root mealybug *Rhizoecus americanus* (Hambleton) (Homoptera: Pseudococcidae) M.S. thesis; Department of entomology, University of Florida, Gainsville.

Marotta S (1995) Due *Rhizoecus* Kunckel d'Herculais, 1878 (Homoptera Coccoidea Pseudococcidae) nuovi per la fauna italiana. Boll. Zool. Agrag. Bachic. Ser. II, **27**(1): 117-121.

Russo A, Mazzeo, G (1992) *Rhizoecus americanus* (Hambleton) e *Pseudaulacaspis cockerelli* (Cooley) (Homoptera Coccoidea) dannosi alle piante ornementali in Italia. Boll. Zool. Agr. Bachic. Ser. II, **24**(2): 215-221.

Williams DJ (1985) Mealybugs of the genus *Rhizoecus* (Hemiptera: Pseudococcidae) on African violet (*Saintpaulia* spp.) with a description of new species from Thailand. Bulletin of Entomological Research, **75**(4): 621-624.

Williams DJ, Granara de Willink MC (1992) Mealybugs of Central and South America. CAB International, 635 pp.

Appendix II

In the absence of reliable data on the biology of *R. americanus* (the only studies are those of Hernandez Paz, 1965), Climex® allows us to compare the humid tropical climate in its present distribution to meteorological conditions on the Mediterranean coast of France, assumed to be the only area of the country favourable to the development of species of tropical origin. Two Spanish stations and two Italian stations are also presented.

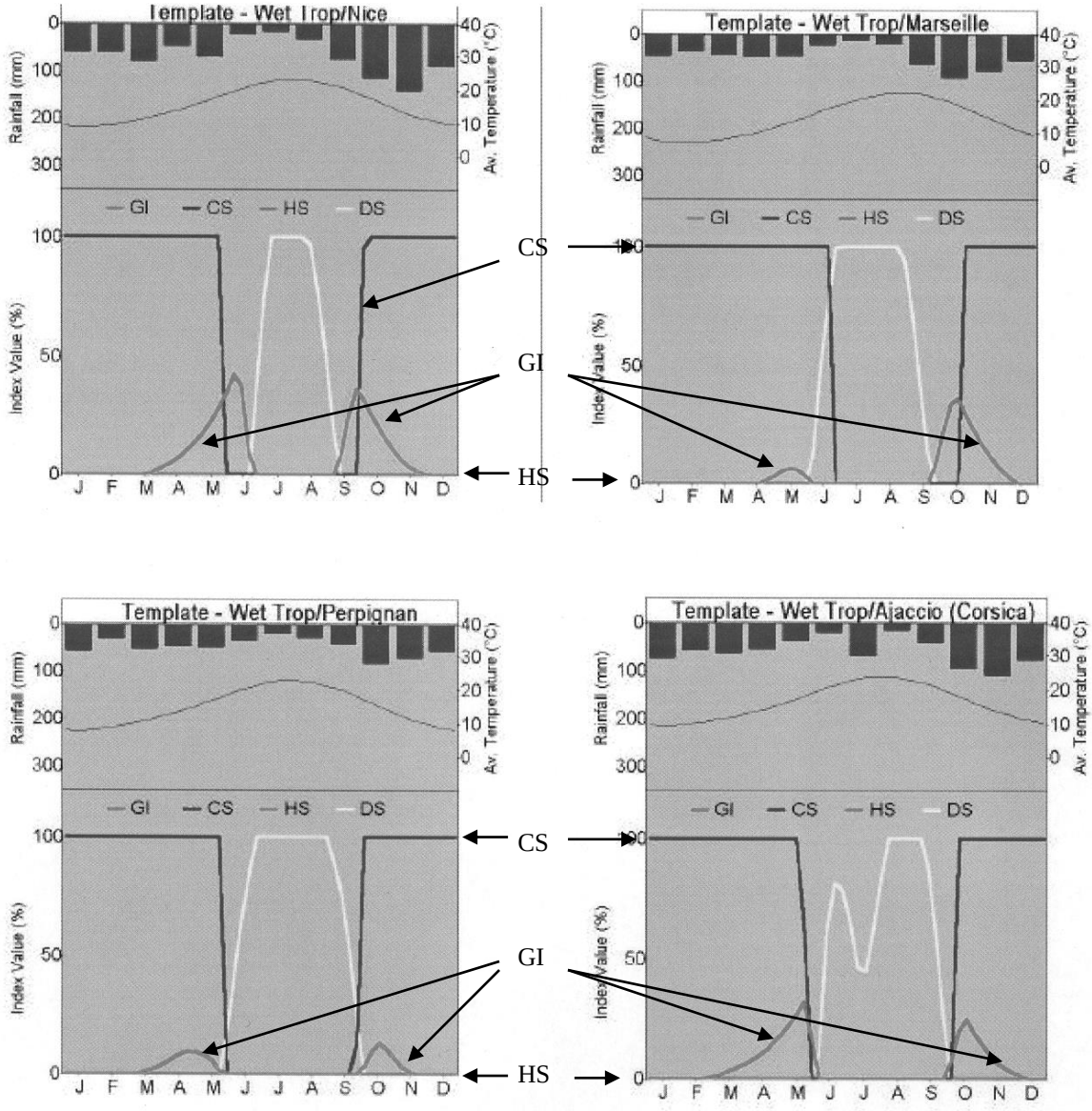
A growth index (red curves, GI) and stresses caused by cold, heat and drought are expressed.

The 4 French stations (Nice, Marseille, Perpignan, Ajaccio) show stress caused by temperatures which are too low during most of the year (blue curves, CS). The situation is similar for the Spanish and Italian stations.

A stress induced by summer drought is also present in the 4 French stations (yellow curves, DS), in the Spanish stations and in Rome (representing the Mediterranean part of Italy). This stress is not expressed in Milan.

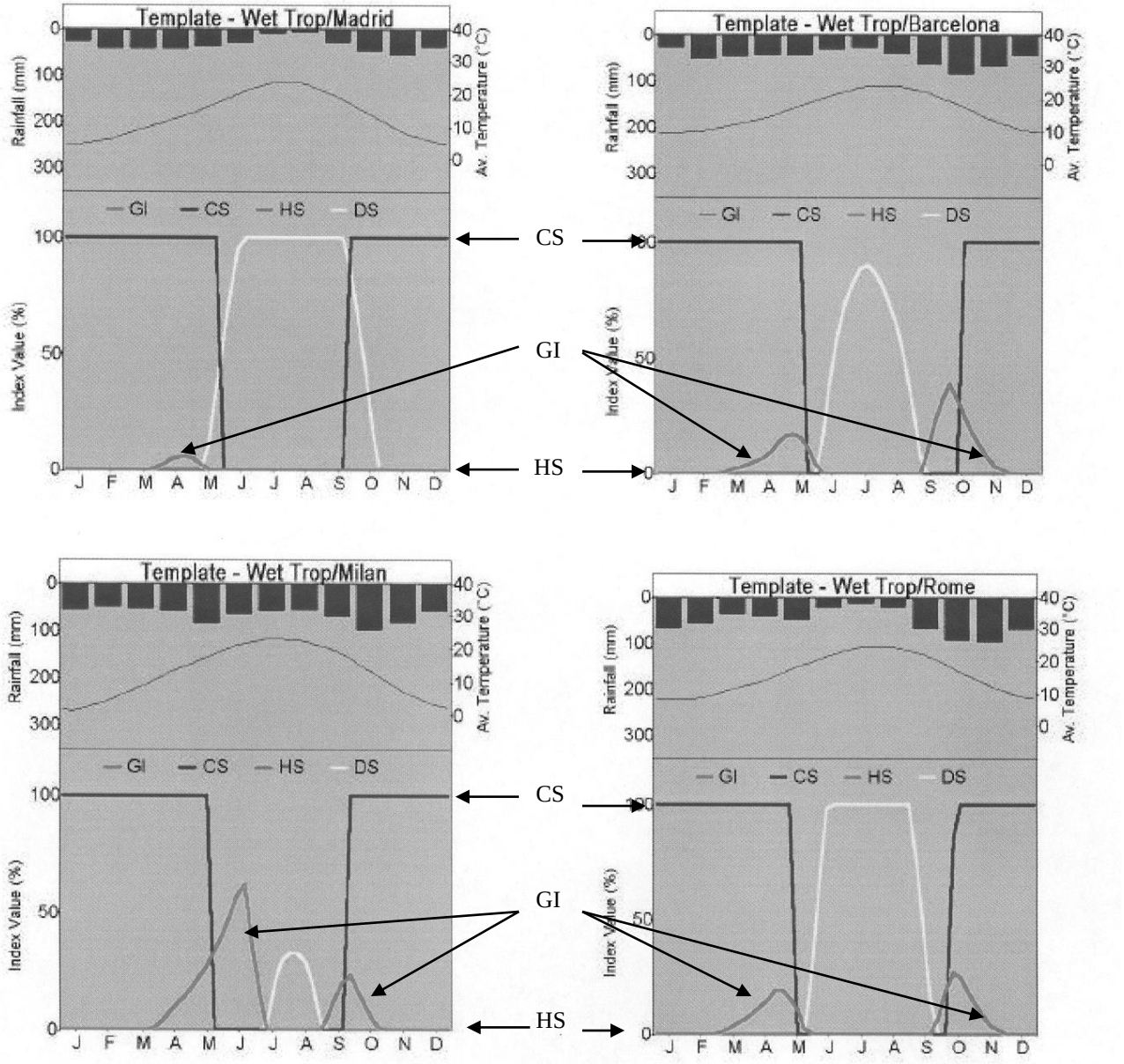
The south European stations are compared to 4 stations in Florida (Key West, Miami, Tampa, Pensacola) (not provided).

In fact, only the southern part of Florida seems favourable to tropical species (total absence of stress). Stations in Tampa, and mainly in Pensacola, show stress caused by winter cold.



France

GI Growth indice	CS Cold stress
HS Heat stress	DS Dry stress



Espagne / Italie

GI Growth indice	CS Cold stress
HS Heat stress	DS Dry stress