Queensland Government

Department of
Employment, Economic Development and Innovation

Reference: **03575/10**

Dr Colin Grant
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Dear Dr Grant

Biosecurity Australia Advice 2010/01 – Draft import risk analysis report for table grapes from the People's Republic of China

I refer to the *Draft import risk analysis report for table grapes from the People's Republic of China* (draft IRA report) and your request for comments by 21 April 2010. The draft IRA report proposes that the importation of table grapes from China be permitted subject to specific quarantine measures.

Biosecurity Queensland, a service of the Department of Employment, Economic Development and Innovation (DEEDI) notes that Biosecurity Australia has identified 17 quarantine pests and two sanitary pests of table grapes that require risk mitigation measures to reduce the risks to an acceptable level. The draft IRA report proposes a combination of risk management measures and operational systems to ensure the phytosanitary status of consignments.

Biosecurity Queensland has reviewed the draft IRA report and has made a number of comments as detailed in the attached document.

Thank you for the opportunity to comment on the draft IRA report. DEEDI will appreciate receiving a response on how the issues raised are to be addressed in any further review leading to the finalisation of this IRA.

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If you require any further information regarding this matter, please do not hesitate to contact Dr Fiona Giblin on telephone 07 3362 9594 or email fiona.giblin@deedi.qld.gov.au.

Yours sincerely

Robert Setter
Associate Director-General
Department of Employment, Economic Development and Innovation

Att

Queensland Government

Department of Employment, Economic Development and Innovation's response to the *Draft import risk analysis report for table grapes from the People's Republic of China*

Biosecurity Australia Advice 2010/01 April 2010

Pest risk assessments

1. Spike stalk brown spot (*Alternaria viticola*) p. 145

According to Simmons (2007), *Alternaria viticola* (Brunard 1897) is not an accepted taxon and the name is listed as *incertae sedis*, as no type material for this taxon has been found. Although *A. viticola* is referred to in the draft IRA, the only modern literature citations are written in Chinese, with only the abstracts in English. Our scientists were able to source two of these abstracts (Liu *et al.* 1996; Ma *et al.* 2004) but, as the papers are written in Chinese, it was not possible to verify the species descriptions for *Alternaria* to determine if the classification is appropriate. Liu *et al.* 1996 is from conference proceedings and, therefore, not peer reviewed and Ma *et al.* 2004 is possibly a magazine and also of questionable scientific standing.

We were unable to source copies of the other papers (or abstracts) cited (Wang 2009; Zhang 2005b; Zhao 2002; Zhu *et al.* 2006) and so cannot comment on their contents:
Zhao 2002 appears to be an internal university publication.
Zhang 2005 seems to be just photos..
Zhu *et al.* 2006 appears to be an internal publication – volume 1, page 1.
Wang 2009 is also in volume 1, page 1 of Hebi Fruits which could not be sourced.
It is speculated that none of these publications are peer reviewed and, thus, the taxonomy of the fungus described cannot be validated.

Page 146, dot point 10: differences in disease resistance
Given the variable nature of *Alternaria* species generally, it is highly likely that there will also be differences in virulence between, and within, populations of *Alternaria* between and within vineyards. Hence, the wide host-range of *Alternaria* species. As the taxonomy of this described *Alternaria* is uncertain, host specificity, pathogenicity, infection process etc. cannot be determined.

4.19.3 Page 148, dot point 6: chemical sprays
The chemical sprays described on p. 23 would be ineffective to control a serious *Alternaria* infection. This is difficult to predict given that no valid (widely accepted) taxonomic identification has been provided.

The abstract of Liu *et al.* (1996) does not provide details of experiments involved, stating only that "Application of Shajunbao 300 or carbendazim gave good control of the disease." A literature search of carbendazim and *Alternaria* reveals that carbendazim is usually amongst the least effective chemicals against *Alternaria* diseases in a number of crops. Examples include onions (Basavaraja *et al.* 2009), safflowers (Murumkar *et al.* 2008; Sumitha and Nandini 2009), datepalms (Vijay *et al.* 2008) and apples (Yin *et al.* 2009).

Recommendation: That Biosecurity Australia re-evaluate this pathogen to determine the appropriate nomenclature and, therefore, match it with the appropriate research and management data, otherwise the information, as it stands, is invalid.

2. Brown rot (*Monilinia fructigena*) p. 152

4.20.1 Page 152, dot points 3 and 8: visible symptoms and latent infections
A lack of brown rot symptoms on grapevines in China does not "support a low likelihood that table grapes exported to Australia would be infected by this pathogen." Low levels of symptoms do not mean low levels of potential infectivity. Is there research supporting this statement?

The risk that should be assessed is the ability of symptomless (latently infected) grapevines (which may subsequently develop symptoms and infectious spores) to provide a pathway for *M. fructigena* to enter Australia and infect our grapevines and highly susceptible stone fruit trees and other susceptible commercial crops. It is quite possible for latent infection structures to survive in the host in transit and to resume growth during suitable conditions.

4.20.5 Page 155: First row of table
The **Impact score** for *M. fructigena* on plant life or health should be **F** – significant at the national level. There are substantial pome and stone fruit industries as well as grapevines present in every state of Australia.

Recommendation: That the consequences of *Monilinia fructigena* is increased to account for latent infection potential in symptomless fruit.

3. Insects

4.3 Grape berry weevil p. 50, 4.5 ruteline beetles p. 64
The probability of entry of some insect pests, such as ruteline beetles and grape berry weevils, have been underestimated. Grape berry weevils hidden inside the seeds of grapes will go undetected with visual inspection, hence the overall probability of entry should be low, not very low. Ruteline beetles should be rated the same as Japanese beetles. It is highly unlikely that visual inspection and removal of damaged berries will reduce pest numbers sufficient to meet requirements.

Recommendation: That the probability of entry of ruteline beetles and grape berry weevils by increased to appropriate levels.

Pest risk management

1. Additional data and information

Temperature and relative humidity data has been provided for several grape production districts. Rain has a greater influence on the occurrence and severity of many fungal diseases, particularly fruit rots. Inclusion of monthly rainfall and leaf wetness data plus harvest times would make it possible to better ascertain the likely risk of fruit rot diseases.

There is a lack of detail on vineyard control measures used in China and remedial actions to enable a rigorous analysis and review of the IRA report. More information of a detailed nature is required. There are gaps in information which raise doubts and concerns about pest control practices in the vineyard and the proposed export protocols.

There is an absence of detail of the vineyard control programme(s) advocated as part of the systems approach, designed to reduce pest numbers to a low level (p. 188). There is also a lack of specific detail on proposed export protocols.

It is a concern that the Chinese authority (AQSIQ) will determine and approve the vineyard control programme used by Chinese table grape farmers, not Australian authorities.

For all the pests and diseases where a systems approach is the proposed protocol, remedial action is be undertaken following a detection in packed product. Yet no details are provided as to the remedial action to be applied.

Recommendation: That more information is provided about orchard control measures and mitigation measures in addition to more meteorological data.

2. Chemicals used in Chinese vineyards

No insecticides or biological control agents are listed for controlling the insect pests found in China. The list of agricultural chemicals used is scant (p. 23). It is highly doubtful so few basic agricultural chemicals (i.e. Bordeaux, lime sulphur, carbendazim) are used, given the acknowledged large number of pests and diseases. A review of literature reveals research papers which mention a range of chemicals for other diseases. This would suggest that there are a lot of products used in Chinese vineyards that are not listed in the report.

- 20% Bingyik emulsion and 500x solution of 50% Baifuling wettable powder for grape white rot (Wu *et al.* 2009)
- 10% Score [difenoconazole] for grape cluster black rot (Sun *et al.* 2008)
- Biological control of crown gall (Chen *et al.* 2007)

Several fungicides listed are not effective against the target disease nominated. Bordeaux mixture is not effective against powdery mildew or grey mould; carbendazim is not effective against downy mildew (p. 23) or other species of *Alternaria*.

No fungicide effective in controlling powdery mildew is listed in the indicative disease management programme (p. 23). So what is being used to control powdery mildew?

Recommendation: That Biosecurity Australia ensures that the use of chemicals in China is thoroughly scrutinised to meet accepted standards of practice in table grape production.

3. Systems approach

Based on the information in the IRA report, a systems approach is likely to be inadequate to "reduce the number of pests" to an acceptable level for many of the pests and diseases.

Vineyard control and surveillance (p. 188)

- No details are provided of the control practices, chemical or biological, that will be applied within the vineyard to achieve the stated objective of reducing the number of pests in the vineyard to a low level.
- It is stated that appropriate pesticide applications will be used to manage quarantine pests. Yet the individual pesticides are not mentioned, nor is information and data to demonstrate the efficacy of the pesticide in controlling the target pest provided in chapter 5 or the discussion of each quarantine pest (Chapter 4).

Recommendation: That more information is provided in the draft IRA report to ensure vineyard control is adequate.

Fruit bagging (p. 188 - 189)

- It is acknowledged that fruit bagging practices vary greatly throughout China and it is this diversity that makes fruit bagging an unreliable technique for ensuring uncontaminated fruit in a biosecurity protocol.
- Bunches will be exposed for 10-15 days prior to harvest. The period would appear to be longer (although not specified) where the bottom of the bag is removed (p. 21). This is sufficient time for a pest infestation (e.g. mealybug, weevil) or disease infection of the bunch to occur. There is no indication vineyard control measures will be applied between removal of the bag and harvest.
- Fruit rots develop immediately before harvest and this high risk period will coincide with the period when the bunch is exposed. This is of particular concern in the case of those diseases whose occurrence and incidence is promoted by wet weather (i.e. brown rot, black rot).
- Even when the bag is on the bunch it is highly likely insect pests can gain entry to the bunch. It is stated the paper bag contains a wire tie (p. 21), however, it is unlikely to be tied so firm as to prevent the entry of some pests. Tying the wire tie firmly will damage the bunch stem (peduncle) and potentially result in death of the bunch. The presence of a wire tie or other method of attaching the bag to the bunch is not mentioned for the other types of bags used.
- The proportion of the period of fruit development (i.e. fruit set to harvest) when the bag is on the bunch is not clear. Calendar dates do not indicate the stage of fruit development. Fruit growth stage is given only for the province of Xinjiang. Hence, the period of time when the bunch is fully exposed to pest infestation and disease infection is unclear for other provinces.
- Consequently, fruit bagging as an effective technique for preventing infestation/infection of fruit must be considered circumspectly.

Recommendation: That the emphasis placed on fruit bagging as a pest and disease control measure is lowered as it is considered to be inadequate.

Pre-shipment fumigation with SO_2/CO_2 for phylloxera

The National Phylloxera Technical Reference Group has raised concerns about the experimental methodology and hence the results used to substantiate the efficacy of SO_2/CO_2 fumigation in controlling phylloxera in packed grapes. This will need to be reviewed as an appropriate control method.

Recommendation: That the use of SO_2/CO_2 fumigation for control of phylloxera is reviewed to meet current expert advice.

4. Management for *Greeneria uvicola, Monilinia fructigena* and *Phakopsora euvitis* pp. 194 and 195

It is not clear if there will be two lots of orchard inspections, before and after bags are removed from fruit. This should be the case. The orchard should be inspected prior to removal of the bags, and any symptomatic material removed prior to opening/removal of the bags. The fruit then needs to be inspected again prior to harvest to ensure that no symptoms have appeared since the bags were opened. This is the only meaningful way of reducing the potential for latent infections.

Recommendation: To clarify the frequency of orchard inspections in relation to bag removal in the management for *Greeneria uvicola, Monilinia fructigena* and *Phakopsora euvitis.*

5. Additional References

Basavaraja MK, Narayana P, Ravindra H, Girijesh GK, Narayanaswamy H (2009) Management of leaf blight disease of onion (*Allium cepa*) caused by *Alternaria porri* (Ellis) Cif. *Environment and Ecology* **27**, 727-728.

Chen F, Guo YB, Wang JH, Li JY, Wang HM (2007) Biological control of grape crown gall by *Rahnella aquatilis* HX2. *Plant Disease* **91**, 957-963.

Murumkar DR, Indi DV, Gud MA, Shinde SK (2008) Field evaluation of some newer fungicides against leaf spot of safflower caused by *Alternaria carthami*. pp. 1-6. (Agri-MC Marketing and Communication).

Simmons EG (2007) '*Alternaria*: An Identification Manual.' (CBS Fungal Biodiversity Centre: Utrect).

Sumitha R, Nandini N (2009) Efficacy of fungicides against *Alternaria* leaf spot disease in safflower. *Annals of Plant Protection Sciences* **17**, 507-508.

Sun X, Lin C, Yang H (2008) The occurrence of grape cluster black mould disease and its control. *China Fruits*, 43-46.

Vijay P, Rathore GS, Godara SL (2008) Evaluation of fungicides, neem product and bio-agent against *Alternaria* leaf spot of datepalm. *Indian Phytopathology* **61**, 363-364.

Wu Z, Lu L, Jiang H, Chen P (2009) Investigation of the occurrence of grape white rot disease and its control. *China Fruits*, 43-46.

Yin L, Liu Z, Shao F, Liu B, Yin H, Zhou T, Shi Z (2009) Inhibition effect of eight fungicides against *Alternaria mali*-pathogen of apple alternaria leaf spots. *Journal of Southwest Forestry University* **29**, 51-53, 58.