

25 June 2009

Committee Secretary
Parliamentary Joint Committee on Corporations and Financial Services
Department of the Senate
PO Box 6100 Parliament House
Canberra ACT 2600
AUSTRALIA
corporations.joint@aph.gov.au

Re: Australian Senate Inquiry into Agribusiness Managed Investment Schemes

Dear Sir/Madam:

I am aware of the Australian Senate inquiry into the failed Managed Investment Scheme (MIS) companies Timbercorp and Great Southern. I wish to place before the Committee my opinions regarding the scientific rigor of methods employed to evaluate land suitability in southern Australia during the late 1990's which may have been a significant factor in the failure of these companies. I also wish to offer evidence of how these land evaluation methods failed to deliver realistic assessment of suitability of land on specific properties in NSW being developed for production of almonds in 2006.

I have 45 years of experience in soil research, teaching and consulting. I am a naturalized Australian citizen resident in the USA since 1998. Between 1992 and 1998 I was attached to the Cooperative Research Center (CRC) for Soil and Land Management, based on the Waite Campus in Adelaide. My primary task was to manage a small group of soil scientists and post graduate students in researching, improving and promoting soil science technologies for the benefit of the perennial horticultural crop industries throughout Australia. In particular, we focused on wine grapes and deciduous fruit, including stone fruit and nuts. During the late 1990's, I participated in a joint venture between The CRC's for Viticulture and Soil and Land Management called the Research to Practice seminar series in which soil science concepts and soil management packages were presented to growers and land evaluation consultants in two-day events ("field days") throughout southern and Western Australia.

During the course of my work and particularly during the seminar-field days, in which we interfaced with a large number of industry participants, I became aware of flaws in the land evaluation practices that were being used by certain consultants which conflicted with the messages we were trying to convey to our industry clients^{1 2}. In particular, the

¹ Cass A. 1998. Assessment of vineyard soils. Paper presented at Tenth Australian Wine Industry Technical Conference.

² Cass A. 1999. What soil factors really determine water availability to vines? The Australian Grapegrower and Winemaker: Annual Technical Issue 426a:95-97.

following deficiencies in the approach used by certain consultants seemed likely to lead to flawed decisions concerning land suitability and hence productivity:

1. In the methods of land evaluation in use at the time, estimates of available soil water storage were based solely on relationships between soil texture and water retention for a small group of soils broadly referred to as “Mallee” soils. This mechanism for estimating available soil water ignored other critically important soil properties such as structure and failed to use more accurate scientific approaches³ such as use of pedotransfer⁴ functions which were being developed and extended to soil survey consultants at the time. Deficient methods for estimating available water can have serious consequences in estimating land productivity and enterprise sustainability.
2. The deficient methods developed for land evaluation⁵, based on the properties of Mallee soils, gave emphasis to calcareous⁶ physical and chemical properties that these soils possess but neglected properties that are important in other soil types such as acid soils, cracking clay soils and non-calcareous sands. Nevertheless, the Mallee soil assessment approach seems to have been widely and inappropriately applied in land evaluation from the early 1990’s through to recent times. The consequence of this was that soils that were probably unsuitable for the designated purpose were brought into production and/or inappropriate land amelioration measures were used which could affect subsequent productivity.
3. In my opinion the open, free-market application of fundamental and rigorous scientific principles to processes of land evaluation in parts of southern Australia between 1992 and 1998 and beyond, was compromised by official sanctioning of flawed methods of land evaluation, suppression of open debate on the methods sanctioned, dismissal of any proposed improvements and vilification of individuals who criticized these methods. This had the effect of entrenching flawed methods of land evaluation for more than a decade in parts of Australia.

In October 2006 I was brought to Australia to evaluate the soil assessments that had been done on two properties near Hillston, NSW, for the purposes of establishing almond enterprises. These soil assessments had apparently been done using the flawed methods discussed above. The authors of the report recommended amelioration

³ McKenzie, N., K. Coughlin, and Creswell H. 2002. *Soil Physical Measurement and Interpretation for Land Evaluation*. CSIRO, Collingwood, Victoria, Australia

⁴ McKenzie N and Creswell H. 2002. Estimating soil physical properties using more readily available data. In McKenzie N, Coughlan K and Creswell H. *Soil Physical Measurement and Interpretation for Land Evaluation*. CSIRO Publishing, Melbourne, Australia.

⁵ Wetherby K. 2003. Soil survey for irrigation. In: Soil surveying in agriculture: Current practices and future directions, pp. 33-36. Australian Soil Science Society (Victoria) and DPI Symposium, Tatura, Victoria.

⁶ Calcareous refers to a sediment, sedimentary rock, or soil type which is formed from or contains a high proportion of calcium carbonate

and mounding of the soils to form raised beds, probably because they considered the soils to be poorly drained.

In reviewing their work, I solicited the help of Dr. Pat Hulme of Sustainable Soils Management, Warren, NSW. We examined soil properties in soil pits dug adjacent to a selection of soil pits described in the soil reports. We made careful comparisons of our observations with theirs. In particular, we found that the soil assessment methods that had been applied to evaluating these soils were flawed in that soil structure evaluations were poor and certain key structural features had been overlooked. Notably, they failed to observe a high level of visible porosity in the subsoils that led them to conclude that the soils were poorly drained and needed expensive re-grading to form raised beds. We disagreed with this recommendation and could find no reason to mound most of the soils.

In general we identified many flaws in the way that the soil data had been used to evaluate the suitability of land for almond production, not only on the Hillston properties but on a selection of other sites in the Murray Valley stretching from South Australia to Victoria. The result of this work was that we developed a new scheme for applying soil properties to evaluating land suitability for almond production and published it in a confidential report to Rural Funds Management.⁷

I respectfully propose that protection needs to be afforded Australian investors from unscrupulous and misguided soil evaluators who can so easily fall victim to vested interests not only in the private sector but also in government. Appropriate regulation should be written to restrict soil assessment to suitably qualified soil scientists who also are constrained by well defined professional standards. There is an existing framework for such protection available through the Certified Professional Soil Scientist (CPSS) accreditation scheme offered by the Australian Society of Soil Science.

I would be pleased to provide further detail on any of this material, if required.

Thank you.

Alfred Cass (PhD)
Soils Scientist

⁷ Alfred Cass. 2006. Selection of Soils for Almond Production on Brooklyn and Yilgah Stations, Hillston NSW. Confidential report to Rural Funds Management, Kingston, ACT 2604.