Eucalyptus plantations health in Brazil: a perspective.

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Brazil has been affected by pests in forest plantations, mainly in *Eucalyptus*, since 1908. Besides the problems with leaf-cutter ants and termites (native pests), invasive pests are the most important in 21st century. The red gum lerp psyllid *Glycaspis brimblecombei* (Hemiptera: Aphalaridae), the bronze bug *Thaumastocoris peregrinus* (Hemiptera: Thaumastocoridae), the blue gum chalcid *Leptocybe invasa* (Hymenoptera: Eulophidae) and the eucalypt snout beetle *Gonipterus platensis* (Coleoptera: Curculionidae) cause more than US$ 600 million of losses in wood production. The PROTEF (Forestry Protection Program), of IPEF works as research cooperative system, involving Universities, research institutions and forest companies, to work in solution of these problems. The main management strategy is based in classical biological control (CBC), with the introduction of Australian parasitoids. In the last 14 years, three species of parasitoids have been introduced (*Psyllaephagus bliteus*, *Cleruchoides noackae* and *Selitrichodes neseri*) to control the first three pest species and *Anaphes nitens* from Rio Grande do Sul (RS) state to Espírito Santo (ES) state (within-country introduction). To *G. platensis* in ES and *T. peregrinus* in South and Central Brazil. The CBC has been proved effective, with expressive population reduction of these pests. Regarding *G. brimblecombei,* the control has been partial, with good results in South Brazil. In central and North Brazil, the parasitoid has been established but cannot control this pest during the dry season (winter and early spring). In 2017, *G. brimblecombei* reached pest levels, and other strategies, as microbial insecticides, were needed to apply. With respect to *L. invasa*, the parasitoid *S. neseri* has been introduced and released in 8 states, becoming established in four states. The early results have been positive in pest level reduction and tree recovering. Since 2014, the participation in the BiCEP program (Biological Control of Eucalyptus Pests Alliance), with researchers of Australia, Brazil and South Africa, has been important to introduce or exchange natural enemies, and for discussing the results and challenges of CBC. Considering *Eucalyptus* diseases, myrtle rust *Austropuccinia psidii* and Ceratocystis wilt *Ceratocystis fimbriata* have been the most important diseases in field conditions and the main strategy control is based in plant resistance and chemical control for myrtle rust.