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HOW EFFECTIVE ARE MANCOZEB-AMENDED DMI+QoI MIXTURES FOR MANAGING SOYBEAN RUST AND PROTECTING YIELD? A META-ANALYSIS¹/ Quão efetivas são as misturas de DMI+QoI adicionadas de mancozebe no controle da ferrugem da soja e aumento da produtividade? Uma metanálise¹ / L. M. ANTONELLO; F. J. MACHADO; E. M. DEL PONTE. ² Departamento de Fitopatologia, Universidade Federal de Viçosa, 36570-900, Viçosa, MG, Brasil. E-mail: franklin.machado@ufv.br

Soybean rust poses an unprecedented challenge to disease management: fungicides that used to work effectively are losing efficacy over time. First the DMI alone, then DMI + QoI mixtures and, more recently, DMI + QoI + SDHI fungicides are no longer effective as before. The available solution is to use “old” multi-site fungicides such as mancozeb (MANC). But are they effective and worth the investment? To answer this question, meta-analysis was used to analyze fungicide efficacy data from a network of trials conducted across 21 locations (eight states) over three harvesting seasons (2013 to 2015) in Brazil. The data were obtained from a network of independent UPL-contracted researchers. From an initial sample of 128 trials, 45 trials (381 independent entries) were used after applying selection criteria, such as the inclusion of a DMI + QoI premix tested alone and amended with MANC. The selected ones (n. of entries) were: AZOX + CYPR (n = 48), PICO + CYPR (n = 35), PICO + TEBU (n = 28), PIRA + EPOX (n = 23) and TRIF + PROT (n = 33). A network model fitted the log of the means of severity (%) and means of yield (kg/ha) for each treatment, including the control. Absolute yield difference between premix alone or amended with MANC was also estimated. The mean efficacy for the premix alone ranged from 44.7% (PIRA + EPOX) to 77.4% (TRIF + PROT), and from 65.2% to 81.7% for the ones amended with MANC. On average, the MANC-amended premix significantly increased control efficacy (+26%) and yield gain (+8.7%) relative to the premix alone. The yield gains relative to control ranged from 16% to 46% for the premixes alone, and from 32% to 53% when amended with MANC. The absolute gains varied from 0.04 (TRIF + PROT) to 282 kg/ha (PIRA + EPOX) when amending MANC. Yield return tended to be highest for the least effective premix under less severe epidemic conditions. The economic benefits from amending MANC in the premix will be calculated for scenarios of soybean price and fungicide costs and the results will be presented. Apoio: FAPEMIG

Keywords: Dithiocarbamate; *Phakopsora pachyrhizi*; Glycine max.