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Chemical control of soybean rust with new fungicide molecules

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Asian soybean rust, caused by *Phakopsora pachyrhizi*, is a damaging foliar fungal disease in soybean-growing areas of Paraguay. Since the first detection in the country in 2001, a high percentage of soybean crop area is treated with demethylation inhibitory fungicides (triazols) in combination with quinone-inhibiting fungicides (strobilurins). In the last years it has been evidenced the lower sensitivity of the triazols fungicides for rust control. On the other side, the introduction of new fungicide molecules has contributed to a greater extends to protect soybean crop against rust. In 2015-2016 season an experiment was carried out in the district of Capitan Meza, Itapua, Paraguay, where 16 fungicides were evaluated alone or in combination, plus one nonfungicide control. Fungicides were applied at three phenological stages of soybean VN-R1-R5. The experimental design used was randomized complete blocks with 5 replicates, variables evaluated were severity, percentage of defoliation and grain yield. Nearly all fungicide treatments reduced fungal infection compared with the nonfungicide control ($P \leq 0,05$). Lower level of rust severity and defoliation were observed with foliar application of Prothiconazole + Tryfloxystrobin; Azoxystrobin + Benzovindiflupyr and Fluxapiroxad + Pyraclostrobin + Epoxiconazole, and grain yield was increased more than 50% compared to nonfungicide control. New molecules such as Prothiconazole, Benzovindiflupyr and Fluxapiroxad in combination with strobilurins proved to be more effective for soybean rust control.