

MIXING PLASMA FUSION WITH 'CRUSADER' AND 'HUSSAR' Important compatibility issues involving loss of efficacy

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The Question

What are the implications of tank mixing Crusader (Dow AgroSciences) and Hussar (Bayer CropScience) with RLF Plasma Fusion.

The Background

An RLF client in New South Wales, Australia, reported a drop in performance of Crusader and Hussar in controlling grasses when tank mixed with Plasma Fusion. Because RLF's representative understood a potential conflict existed because Plasma Fusion drops the pH, technical advice was sought from the Chemist. It was the client's belief that both these herbicides were dual purpose grass/broad-leaf control agents.

The Chemist's Response

1. Crusader (Dow AgroSciences)

Label information for Crusader (Dow AgroSciences) does not include compatibility with foliar fertilisers, however the active ingredient, pyroxsulam, is not considered to be stable to hydrolysis at pH <5. The pKa for pyroxsulam is 4.67 which means at low pH most of the active ingredient will be present in the organic acid form, which is virtually insoluble in water (<0.1 g/L). Both of these factors suggest that if the final pH of the Crusader/Plasma Fusion tank mix is less than 5, it is possible that the bio-efficacy of the herbicide may be reduced.

2. Hussar (Bayer CropScience)

The active ingredient in Hussar (Bayer CropScience) is iodosulfuron-methyl-sodium (IMS) which is relatively stable in acidic aqueous solution (DT50 of 4 days at pH 4). However, the label for Hussar clearly states that this herbicide is incompatible with zinc and that "mixing with zinc-based foliar fertilisers may result in loss of efficacy". Only two pesticides are listed as compatible with IMS, Lontrel (clopyralid ai; Dow AgroSciences) and Starane (fluroxypyr ai; Dow AgroSciences), therefore any loss of efficacy when tank mixed with other products can most likely be attributed to chemical or biological incompatibility of the mixture.

Although the zinc content of Plasma Fusion is just over 4 %w/v, only a very small proportion of this is in a complexed form.

Given the known incompatibility with zinc, tank mixing IMS with any foliar fertiliser containing this nutrient is definitely not recommended.

References :

- i. The Pesticide Manual Online, BCPC (British Crop Production Council), 2014
- ii. Crusader Herbicide label, Dow AgroSciences, APVMA Approval No. 61277/51143; <http://websvr.infopest.com.au/>
- iii. Hussar Selective Herbicide label, Bayer CropScience, APVMA Approval No. 61992/0410; <http://websvr.infopest.com.au/>

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