

Control of Tuber Blight with Fungicides in Great Britain

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Ruairidh Bain
SAC, John Niven Building
Auchincruive Estate, Ayr, Scotland, KA6 5HW, UK
Email: Ruairidh.Bain@sac.co.uk

Nick Bradshaw
ADAS UK Ltd, Henstaff Court Business Centre
Groesfaen, Cardiff, Wales, CF72 8NG, UK
Email: Nick.Bradshaw@adas.co.uk



Introduction

Between 2003 and 2005 the British Potato Council funded ADAS and SAC to evaluate the newer fungicides Electis, Ranman, and Sonata compared with three more established fungicides, i.e. Curzate M, Invader and Shirlan. The work formed part of the BPC's Fight Against Blight campaign with the aim of contributing to the understanding and development of disease management strategies. One of the objectives was to examine the control of tuber blight. The same protocol was carried out at two sites, i.e. ADAS Rosemaund, Herefordshire and SAC, Auchincruive Estate, Ayrshire. BPC funding of a modified protocol in 2006 allowed tuber blight control by Infinito, Valbon and the 0.4 l/ha rate of Shirlan to be evaluated.

Methods

In the 2003 to 2005 trials all programmes started with three applications of Tattoo to protect the plots during rapid haulm growth. The different fungicide treatments were then applied from application four until haulm desiccation. The different fungicides were applied at 7 to 10 day intervals depending on blight risk. The fungicide doses (kg or l/ha) were Shirlan 0.3, Curzate M 2.0, Invader 2.0, Ranman 0.2 + 0.15, Electis 1.8 and Sonata 1.5.

The protocol was similar in 2006 but the fungicides and doses (kg or l/ha) used were Shirlan 0.3, Curzate M 2.0, Infinito 1.6 and Valbon + ZinZan 1.6 + 0.15 (BPC-sponsored core treatments) plus Shirlan 0.4 and Ranman TP 0.2 + 0.15 (sponsored by Syngenta and Belchim).

In all of the trials reported here the blight susceptible cultivar used was King Edward (foliar and tuber resistance ratings of 3 and 4 respectively). For some fungicides the label restriction regarding the maximum number of fungicide applications was overridden to allow scientifically valid comparisons.

Fig. 1 Tuber blight in relation to fungicide treatment

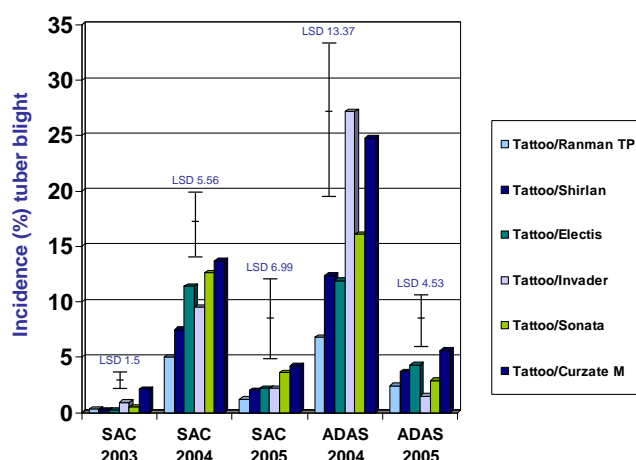
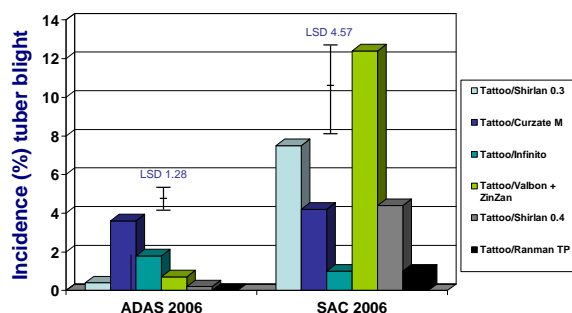


Fig. 2 Tuber blight in relation to fungicide treatment in 2006



Results and Conclusions

2003 - 2005

- There were significant differences in tuber blight control between the six fungicides for three of the five trials (Fig. 1). The ranking order of the different fungicides was broadly consistent across sites and years. The main exception was the effectiveness of Invader in the two ADAS trials. The average rankings for five trials were Ranman TP (1.6), Shirlan (2.4), Electis (3.0), Invader (3.6), Sonata (4.2) and Curzate M (5.8). In most of the trials we consider that the control of tuber blight by the fungicides was a direct effect.
- In 2004 at Auchincruive, the epidemic was particularly severe and control of tuber blight was confounded by the control of foliar infection (indirect control). In contrast, at Rosemaund in the same year the control of tuber blight by fungicides was through an effect on the tuber infection process (direct control). For these two trials there was a good correlation between direct and indirect control ($r=0.90$, $P=0.019$).

2006

- In 2006 also, tuber blight control was indirect at Auchincruive and direct at Rosemaund. In the ADAS trial the relative efficacies of Ranman TP, Shirlan and Curzate M matched the results in 2003 to 2005 (Fig. 2). At Auchincruive this was not the case because tuber blight control was confounded by the control of foliar blight. Unlike in 2004 there was little relationship between the ranking orders for the fungicides at the two trial sites in 2006. The results for Infinito, Valbon and Shirlan @ 0.4 l/ha should be regarded as preliminary because they are from two trials only, both carried out in the same growing season.

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