

## Effect of Drop Impact Behavior on Spray Retention

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**Abstract :** Drop behaviour during impact affects retention. The increase of adhesion is usually seen as the objective when applying crop protection products, while bouncing and shattering are seen as detrimental to spray retention. However, observation of drop impacts using high speed shadow graphy shows that fragmentation can occur in Wenzel wetting regime. In this case, a part of the drop sticks on the surface, what contributes to retention. Using simultaneous measurements of drop impacts with high speed imaging and of retention with fluorometry for 3 spray mixtures on excised barley leaves allowed us to observe that about 50% of the drops fragmented in Wenzel state remain on the leaf. Depending on spray mixture, these impact outcomes accounted for 25 to 50% of retention, the higher contribution being correlated with bigger VMD (Volume Median Diameter). This contribution is non-negligible and should be considered when a modelling of spray retention process is performed.

**Keywords :** drop impact, retention, fluorometry, high speed imaging

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