



Arbeitskreis Acker- und Kartoffelbau Stader Geest

Practical Field Experience with the SKW® System

Within our arable farming working group of approximately 80 members, several farms have been using the SKW system in crop protection application technology since 2017. The equipment used mainly consists of trailed sprayers from different manufacturers (e.g. Dammann, Horsch, Lemken and Amazone) with tank capacities ranging from 3,000 to 6,000 litres and working widths of up to 36 m. The following findings and recommendations are based on over 10 years of practical field experience:

Water Application Rate and Conditioning

The SKW system allows a significant reduction in water volumes without compromising efficacy. In many cases, application rates can be reduced from around 200 l/ha to 150 l/ha.

In potato production, previous water volumes of 300–400 l/ha can often be reduced to approximately 250 l/ha. This is attributed to improved dissolution of active ingredients (particularly contact products), more uniform leaf coverage, and faster drying.

The SKW system does not influence nozzle drift characteristics. No issues with deposits in pipes or nozzles have been reported. However, following initial use, existing residues in the system may be mobilised, making thorough cleaning advisable.

Liquid Fertiliser Application (UAN, Piasan E, Piasan G 20/8, Alzon products)

Liquid nitrogen fertilisers are typically applied using FD nozzles or comparable application systems. Under unfavourable weather conditions (e.g. high solar radiation, drought stress or elevated temperatures), leaf scorch may occur. These effects are well known and are not related to the SKW system, but rather to general principles of liquid fertiliser application.

When applied correctly, UAN, Piasan products and stabilised nitrogen fertilisers such as Alzon can be used safely and effectively. Key requirements include suitable weather conditions, adjusted application rates, appropriate nozzle selection (e.g. FD nozzles), coarse droplet spectra, and moderate spray pressure (approx. 1.5–3 bar). The SKW system does not negatively affect crop safety or fertiliser performance.

Solid foliar fertilisers, particularly EPSO products (e.g. Combitop, Bortop, Profitop), demonstrate excellent crop safety and are generally uncritical in terms of leaf compatibility.

Fungicides:

Fungicide rates can typically be reduced by 10–25%, depending on application timing. The closer the treatment is to the infection event, the greater the potential for rate reduction.

Tank mixtures including herbicides, growth regulators and fungicides can also be reduced. Contact and partially systemic fungicides in potatoes show very good leaf coverage. Positive experiences have also been reported in fruit production.

Herbicides

Foliar-active herbicides offer a high potential for rate reduction (15–20%). For soil-applied herbicides, reductions of 5–10% are generally achievable.

Growth Regulators

Cereals: approx. 10% increase in efficacy

Oilseed rape: approx. 15% increase in efficacy

Foliar Fertilisers and Insecticides

Combining foliar fertilisers (e.g. EPSO products) with the SKW system improves water quality and enhances active ingredient availability (water conditioning effect).

In insecticide applications against aphids in cereals, a faster initial effect has been observed. In oilseed rape, improved control has been achieved at standard application rates.

Nozzle Selection

Injector nozzles (ID, IDK) and twin flat-fan nozzles (IDKT) are particularly suitable. Asymmetrical air-injector twin flat-fan nozzles (IDTA) are also well suited and allow higher forward speeds while maintaining good coverage.

Formulation Behaviour of Crop Protection Products

Solid formulations (e.g. WG, WP) show improved dispersion and dissolution when used with the SKW system. Liquid formulations based on solvents or oils (e.g. SE, EC, OD, ME) are also dispersed more efficiently and distributed more evenly.

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Always follow current regulatory requirements, label instructions and product approvals when using crop protection products.