

A serological test system for digital dermatitis – ongoing work

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CONCLUSIONS SO FAR

- The ELISA test system provides useful information that can contribute to the assessment of a herd's DD status.
- Combining test results from analysis based on different antigens adds flexibility and usefulness of the test.
- Identification and inclusion of additional antigens may further increase the diagnostic sensitivity of the test system.

Five proteins from *Treponema phagedenis*-like isolates were used as antigen in an indirect ELISA test system:

Proteins A, B, C
Proteins D, E

Will be further developed and included in a research test kit
Poor performance and not developed further at this point

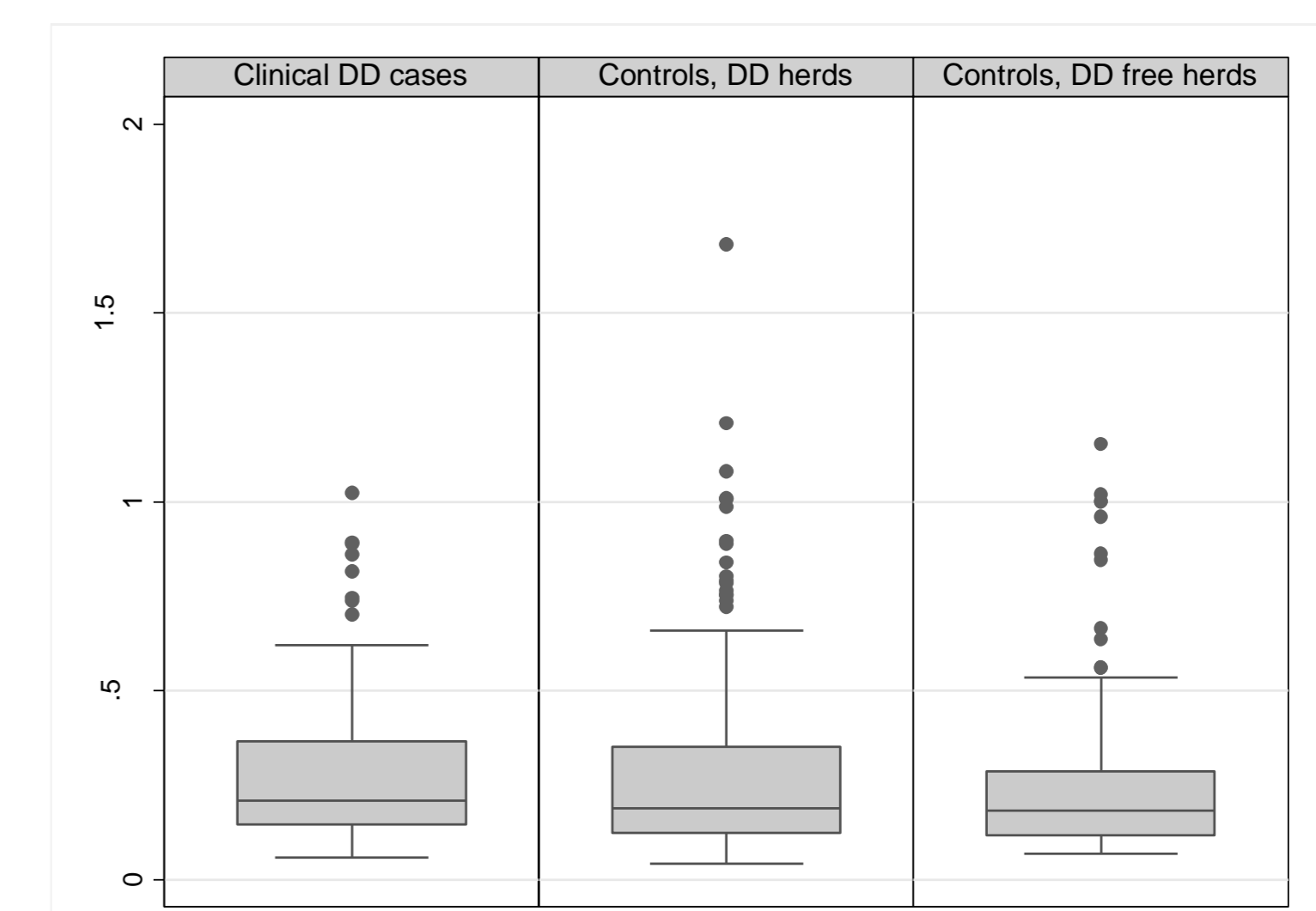
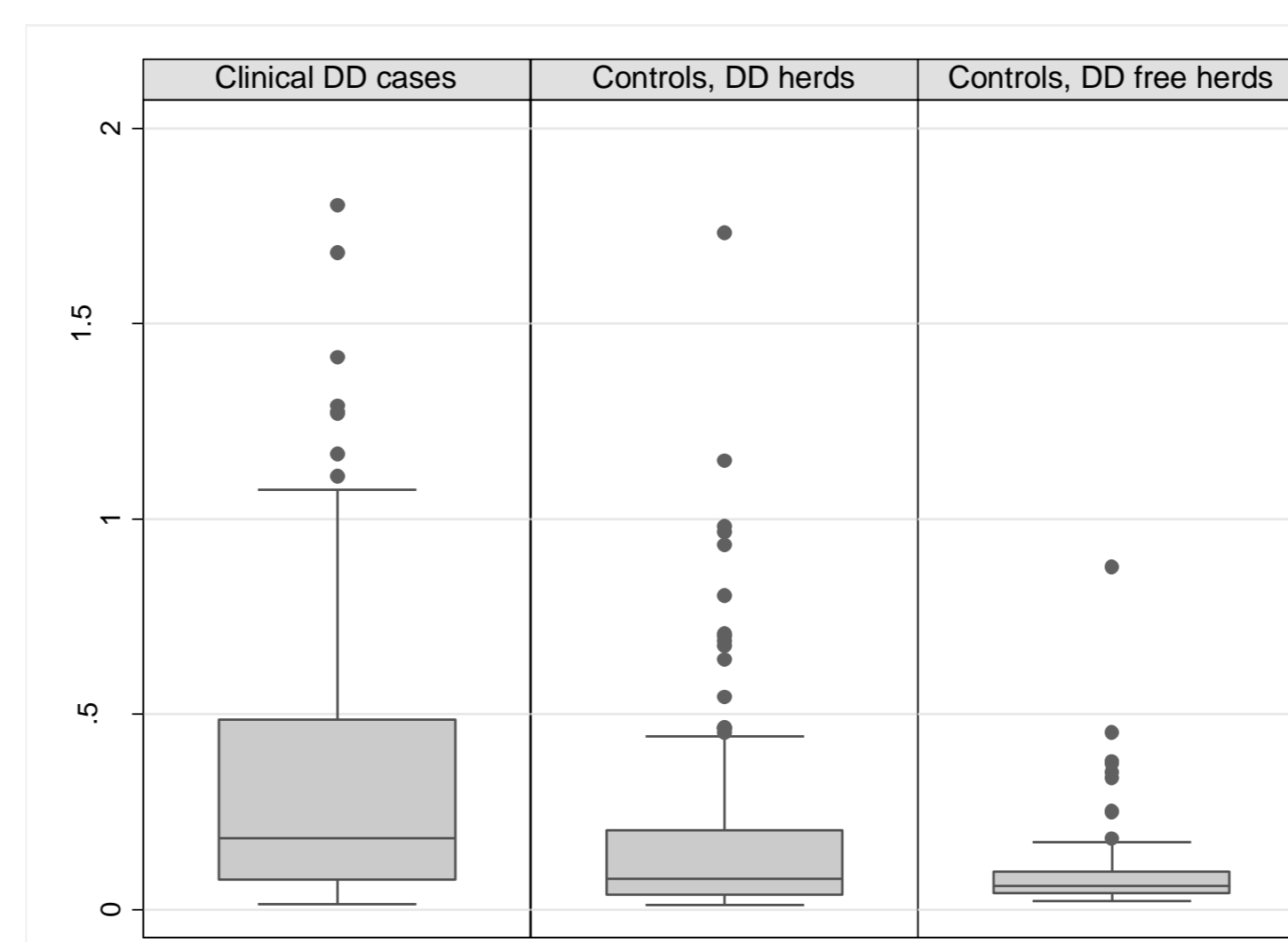
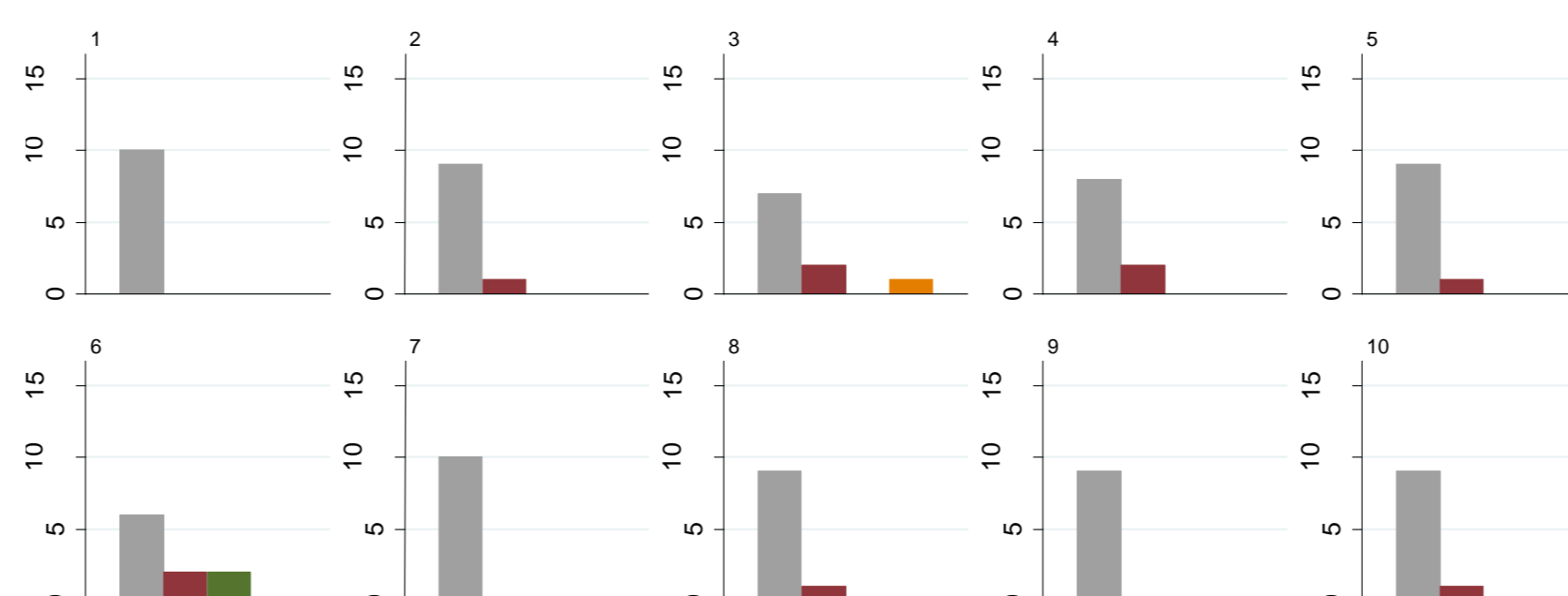


Fig. ELISA test results (absorbance values) from analysis of serum samples from cows with different DD status. Using Protein A as antigen (left) seem useful while using Protein D (right) show poor ability to separate cows with DD from cows without DD.

ELISA test results from using Protein A, B and C as antigen were dichotomised based on preliminary cut-off values and combined to create four groups of cows; cows testing positive to 0, 1, 2 or all 3 of the antigens.

Herds without clinical DD



Herds with clinical DD

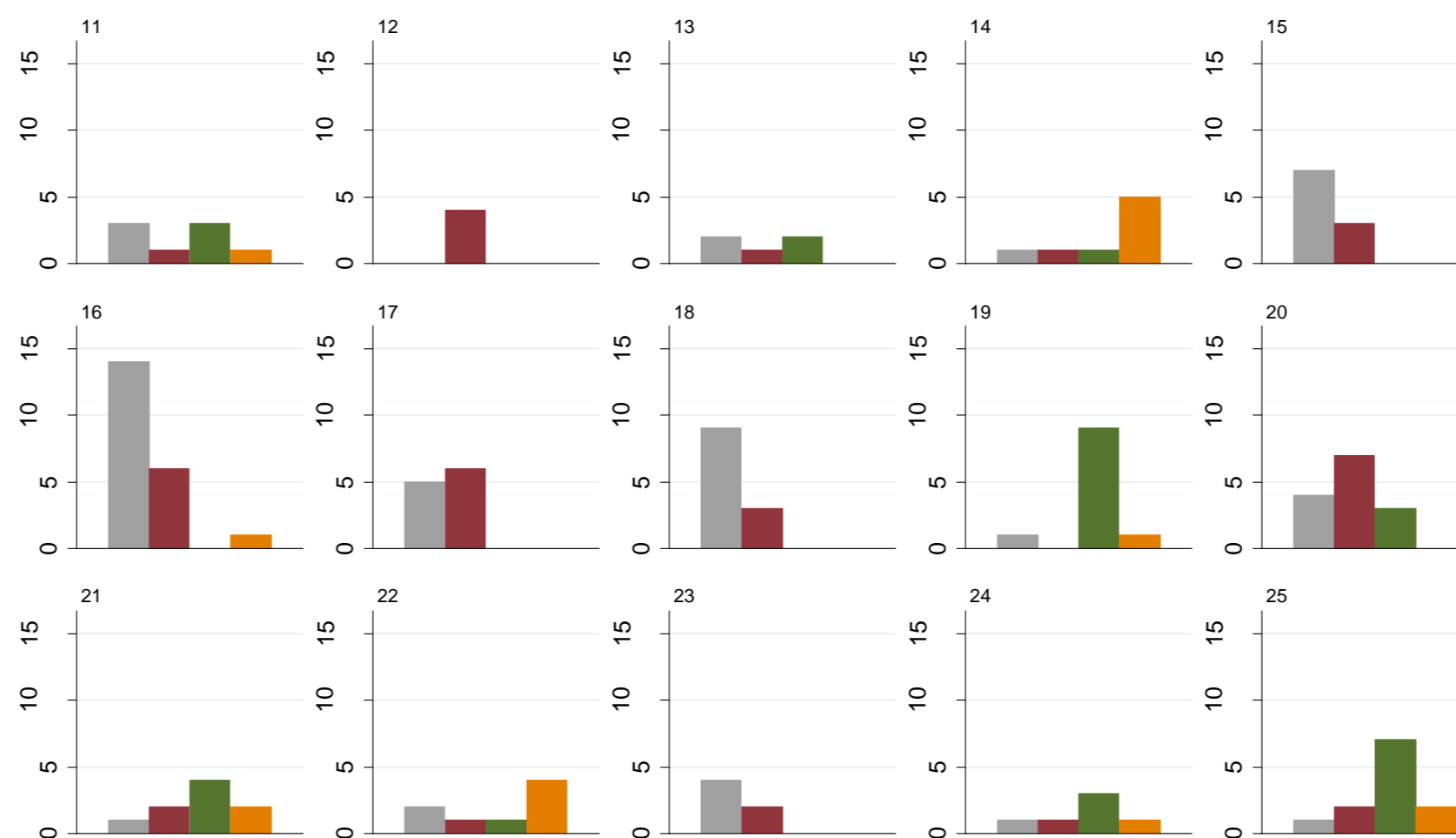


Fig. Distribution within each herd in the study sample; number of cows testing positive to 0, 1, 2, or 3 antigens:

■ none ■ one ■ two ■ three

The distribution of individual test results within herds showed a difference between herds with clinical DD and herds where DD has not been recorded.

In general, the distinction between the two types of herds is clear but some herds with clinical DD had very few test positive cows.

FUTURE APPLICATION

- Epidemiological studies of DD, e.g.:
Spatio-temporal trends
Risk factor analysis
- Disease control
- Surveillance purposes

The test system will be made commercially available in research version during 2013 by Vicia Animal Health Science AB.



Photo: Christer Bergsten

A clinical case of digital dermatitis (DD)

WHAT'S NEXT?

- Analysis of milk samples from individual cows and bulk milk.
- Estimation of diagnostic sensitivities and specificities and optimal ELISA cut-offs.
- Calculation of probability of DD on both animal and herd level based on test results combined with information on claw health (from the database of the Swedish official milk recording system).