A4

Group 1 supplement

Pain relief for piglets

Eighteen litters of piglets are included in a study of pain relief after a routine procedure. Within every litter, half of the piglets are randomly allocated to receive an analgesic gel and the other half receive a placebo gel. Each piglet is treated separately.

A behavioural pain score is recorded for every piglet before treatment and at 1, 3 and 6 hours after the procedure.

DISCUSS
Treatment | experimental unit | observations | true replicates

A5

Group 1 supplement

Mineral blocks for grazing cattle

Eighty growing heifers graze in 10 separate paddocks, with eight heifers in each paddock. Five paddocks are randomly allocated to receive a new mineral block and five receive the standard mineral block.

The blocks are shared by all heifers within a paddock. Every heifer is weighed at the beginning and end of the 10-week grazing period.

DISCUSS
Treatment | experimental unit | observations | true replicates

A6

Group 1 supplement

Incubation temperature and chick development

Six incubators each contain 120 fertilised chicken eggs. Three incubators are randomly set to the standard incubation temperature and three are set 0.5°C higher.

Hatching success is recorded for every egg. The body mass and leg length of every chick that hatches are measured on the day of hatching.

DISCUSS
Treatment | experimental unit | observations | true replicates

B4

Group 2 supplement

Eye drops for horses

Fourteen horses with mild inflammation in both eyes are included in a treatment study. For each horse, one eye is randomly selected to receive eye drop A and the other eye receives eye drop B.

Inflammation is scored separately in each eye before treatment and again after 2, 5 and 8 days.

DISCUSS
Treatment | experimental unit | observations | true replicates

B5

Group 2 supplement

Two diets in a sheep crossover study

Twelve sheep each receive both a high-fibre diet and a low-fibre diet during two four-week feeding periods. The order of the diets is randomly allocated for every sheep, and a two-week washout separates the periods.

During the final week of each period, feed intake is recorded daily and three rumen-fluid samples are collected from each sheep.

DISCUSS
Treatment | experimental unit | observations | true replicates

B6

Group 2 supplement

Bath vaccination of salmon

Four hundred juvenile salmon are housed in eight tanks, with 50 fish in each tank. Four tanks are randomly allocated to receive a vaccine delivered as a tank-wide immersion bath. Four tanks receive a sham immersion bath.

Six weeks later, antibody concentration and body mass are measured for 15 fish sampled from every tank.

DISCUSS
Treatment | experimental unit | observations | true replicates

C4

Group 3 supplement

Parasite treatment in alpacas

Twenty-four alpacas are randomly allocated to receive either a new antiparasitic treatment or the standard treatment, with 12 alpacas in each group.

Two weeks later, one faecal sample is collected from every alpaca. Three subsamples are taken from each sample, and parasite eggs are counted twice in every subsample.

DISCUSS
Treatment | experimental unit | observations | true replicates

C5

Group 3 supplement

Milking training on dairy farms

Fourteen dairy farms using automatic milking systems are recruited. Seven farms are randomly allocated to receive a new staff-training programme and seven continue with their usual training.

For three months, milking frequency, rejected visits and milk yield are recorded for every cow on each farm.

DISCUSS
Treatment | experimental unit | observations | true replicates

C6

Group 3 supplement

Bedding material in dairy barns

A researcher compares two bedding materials using two dairy barns. One barn, containing 70 cows, receives sand bedding. The other barn, containing 65 cows, receives recycled-fibre bedding.

After eight weeks, hock lesions and lying time are recorded for every cow. The researcher plans to analyse the 135 cows as independent treatment replicates.

DISCUSS
Treatment | experimental unit | observations | true replicates

D4

Group 4 supplement

Preservatives for milk samples

A milk sample is collected from each of 15 dairy cows. Every sample is mixed thoroughly and divided into three equal aliquots. Within each cow, the three aliquots are randomly allocated to preservative A, preservative B or no preservative.

Bacterial count is measured in every aliquot after 24 hours of refrigerated storage.

DISCUSS
Treatment | experimental unit | observations | true replicates

D5

Group 4 supplement

Methane inhibitor in dairy cows

Sixteen dairy cows are randomly allocated either to receive a methane-reducing feed additive or to receive the control diet, with eight cows in each treatment. Each cow is fed individually.

Methane production is measured during three separate respiration-chamber visits, and four breath readings are taken during every visit. Milk yield is recorded daily.

DISCUSS
Treatment | experimental unit | observations | true replicates

D6

Group 4 supplement

Music enrichment in a shelter wing

Thirty dogs are housed in separate kennels within one wing of an animal shelter. Their behaviour is observed for three weeks under normal management conditions.

A music system is then installed for the whole wing, and all dogs are observed for another three weeks. The researchers compare the many behavioural observations recorded before and after the music was introduced.

DISCUSS
Treatment | experimental unit | observations | true replicates