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WEBINAR:

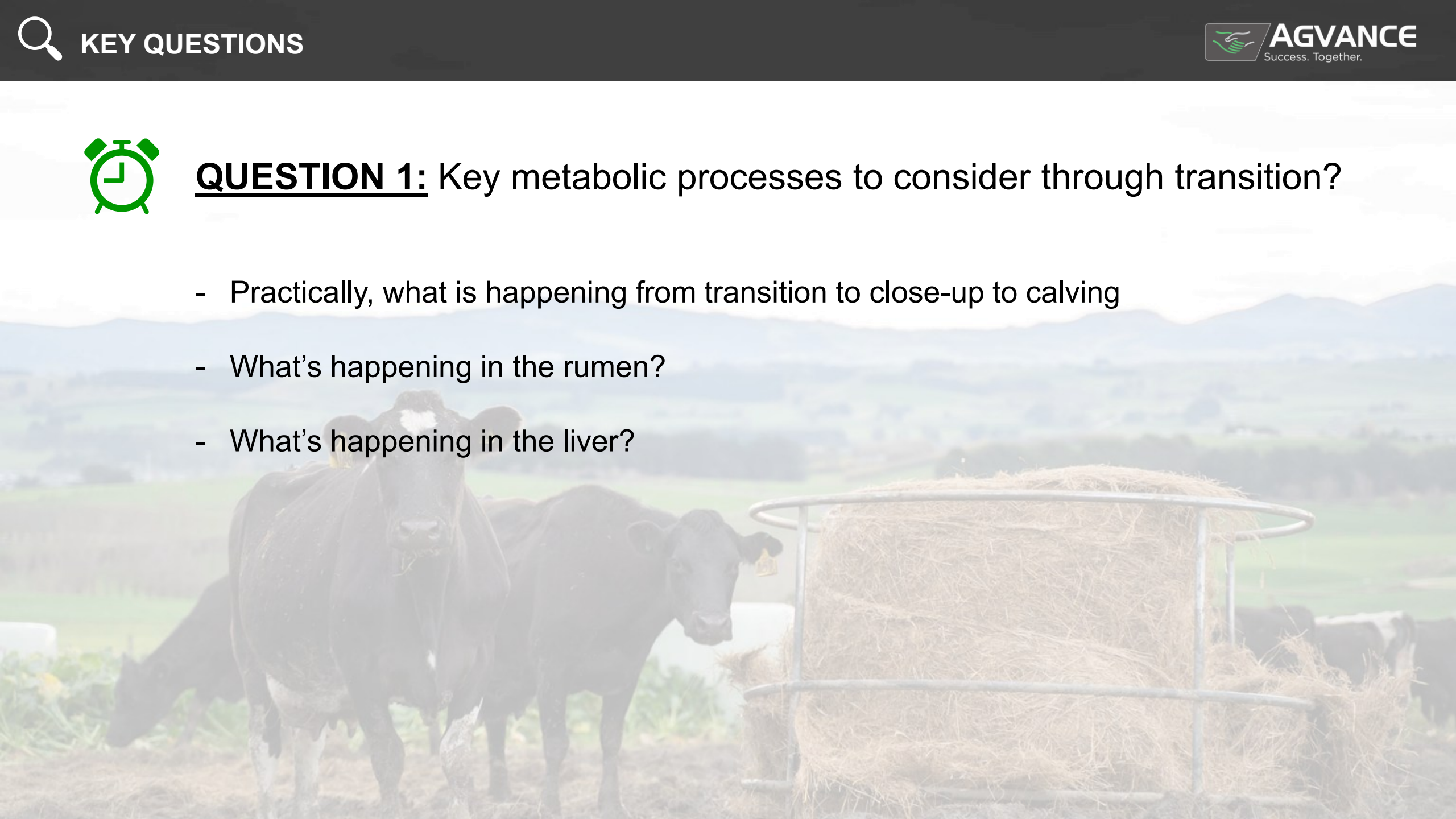
Setting the Cow Up for Success -

Transition Cow Management

Presented by SHAUN BALEMI

QUESTION 1: Key metabolic processes to consider through transition?

- Practically, what is happening from transition to close-up to calving
- What's happening in the rumen?
- What's happening in the liver?



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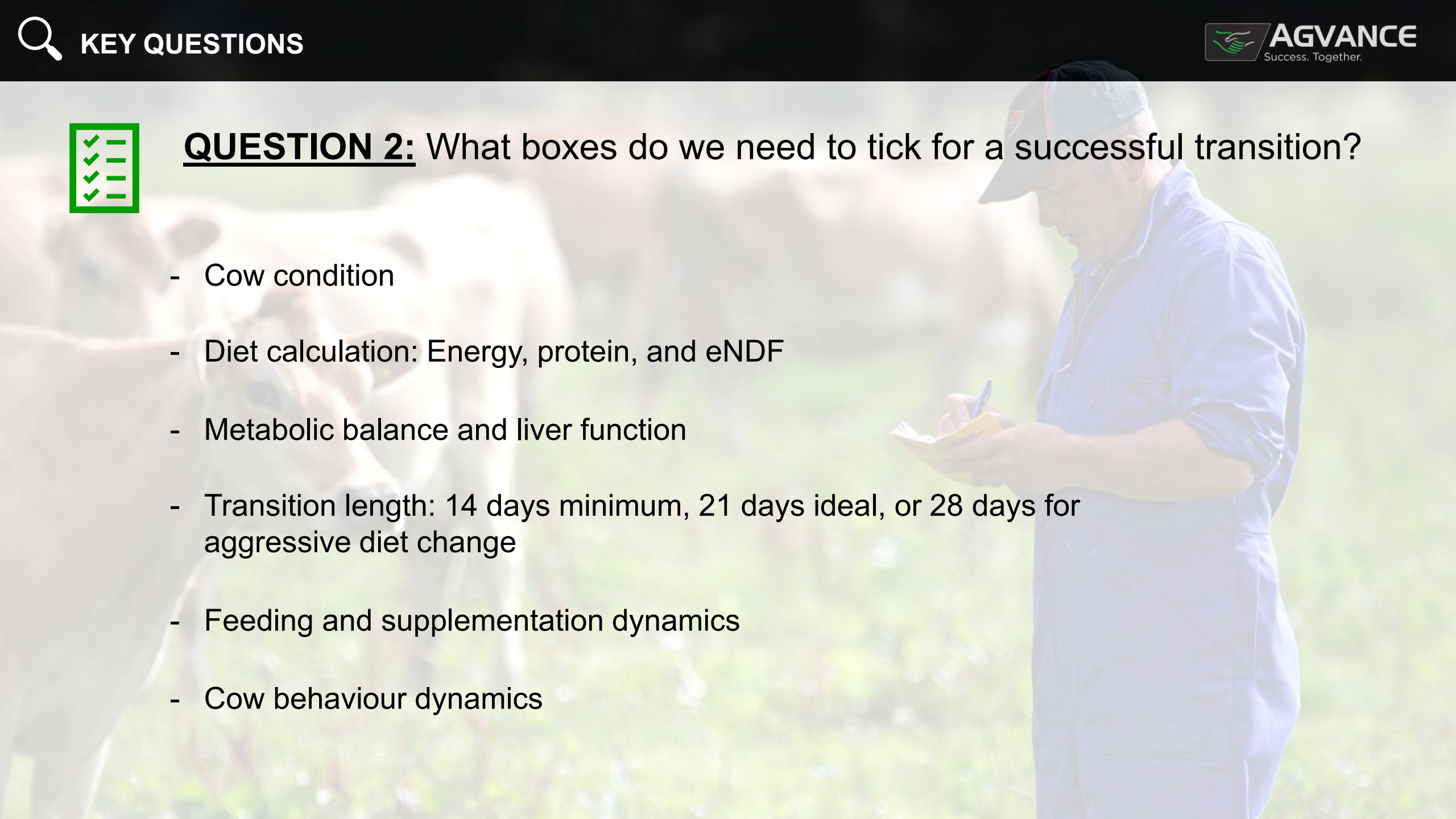
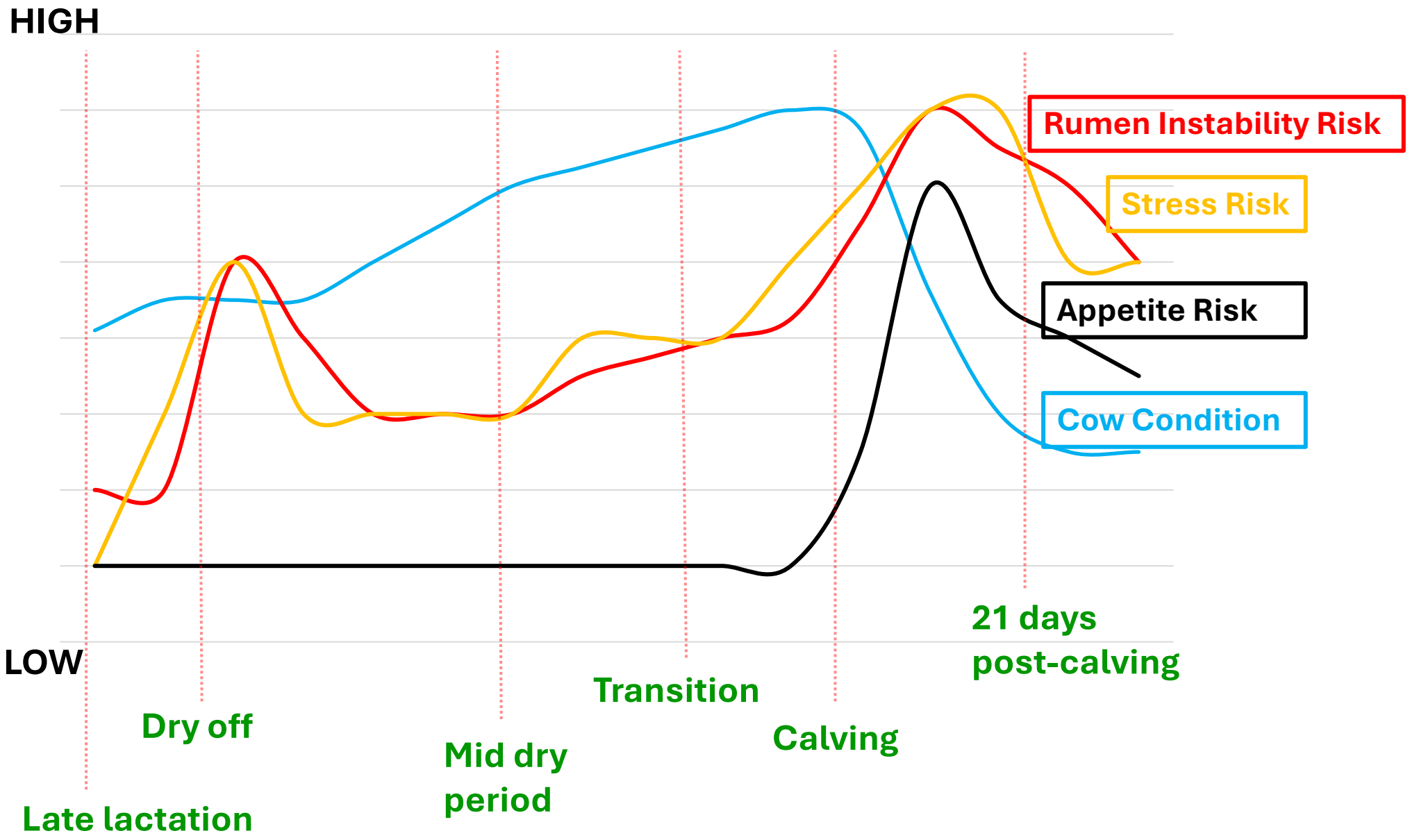
QUESTION 2: What boxes do we need to tick for a successful transition?

- Cow condition
- Diet calculation: Energy, protein, and eNDF
- Metabolic balance and liver function
- Transition length: 14 days minimum, 21 days ideal, or 28 days for aggressive diet change
- Feeding and supplementation dynamics
- Cow behaviour dynamics



TRANSITION CHANGES IN THE RUMEN AND STRESS



RUMEN DYNAMICS THROUGH THE DRY TO TRANSITION TO CALVING

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DRY-COW DIET

↓ Fibre access

TRANSITION DIET

↓ Fibre access

CALVING DIET

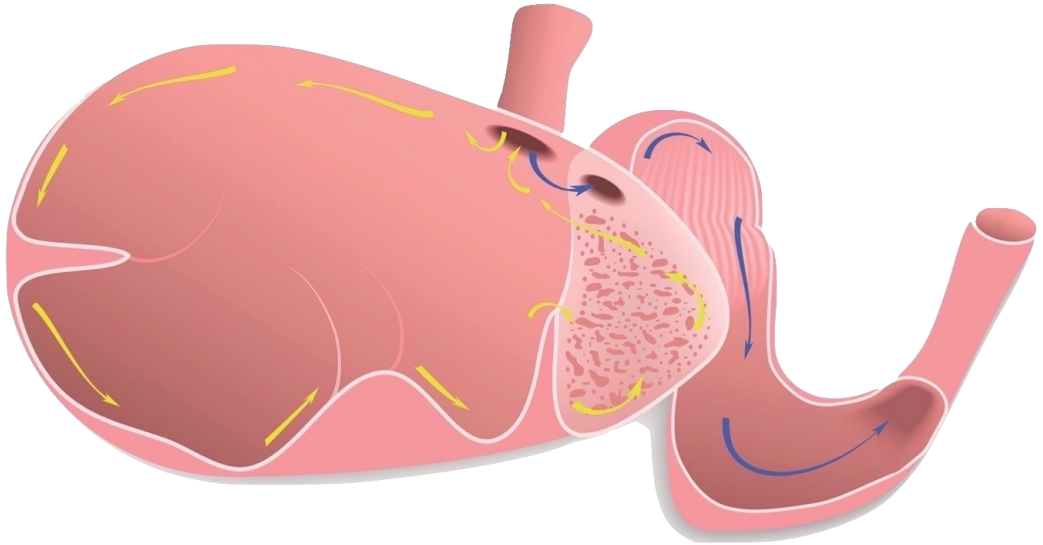
STRESS

DIET CHANGE

PAPILLAE DEVELOPMENT

FIBRE

ENERGY: Sugar



TRANSITION TIME

ENERGY: Starch

APPETITE

ENERGY: Cellulose

BUFFERS /YEAST

MINERAL BALANCE

PROTEIN

RUMEN DYNAMICS THROUGH TRANSITION

Fibre: Used as a tool for rumen fill, improving rumination frequency and power. Also stretches the rumen, improving appetite post-calving

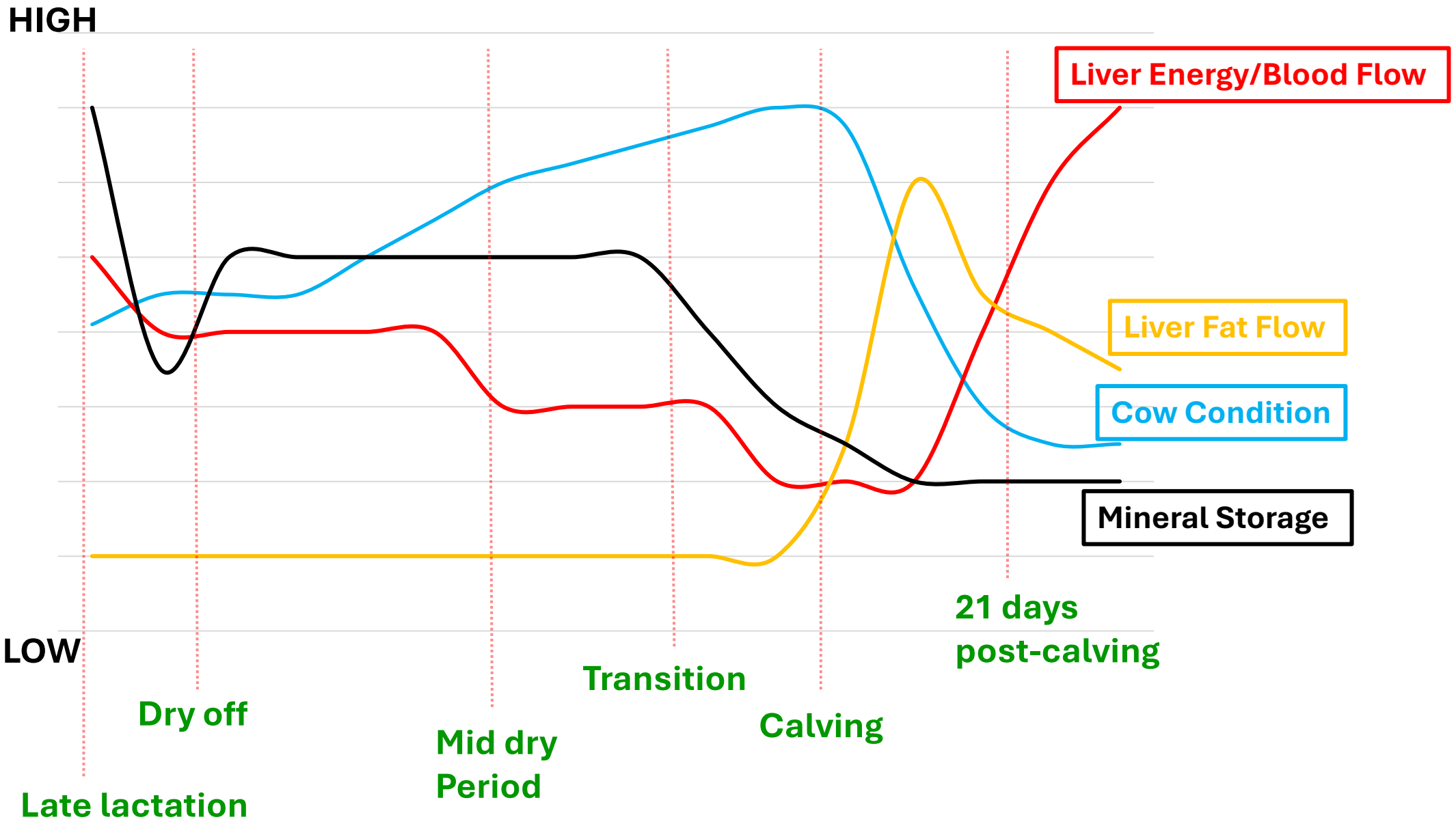
Minerals: Calcium is critical for smooth muscle function, influencing rumination performance, phosphorus and magnesium, along with DCAD, help balance cow metabolic status. Trace minerals stimulate immune system function, lower the effects of stress and help reduce inflammation after calving.

Rumen stability/diet change: Stress and diet changes upset rumen dynamics and microbes. Slow-release buffers and yeasts help to keep the rumen environment more stable.

Protein: Must meet maintenance (>14% of diet). When feed intakes are restricted, it's important that protein quantity anhd quality are calculated carefully.

Energy: Must meet maintenance (20-25% of LWT), fibre-bound, low-energy feed, low appetite, little pressure on rumen.

METABOLIC CHANGES IN THE LIVER



The liver is the engine of the cow - it takes the fuel the rumen microbes release from the feed and burns it to produce energy, protein and other metabolites key for cow performance and function.

Like a high-performance race car, we can 'tune' the liverto help to improve the performance of the car.

Everything I talk about today is associated with this 'tuning' of the liver, which affects:

- Increased cow recovery post-calving
- Peak milk earlier/increased milk production/cow
- Increased days in milk
- Less days to first cycle
- Higher six-week in-calf rate
- Improved immune system function
- Better animal health

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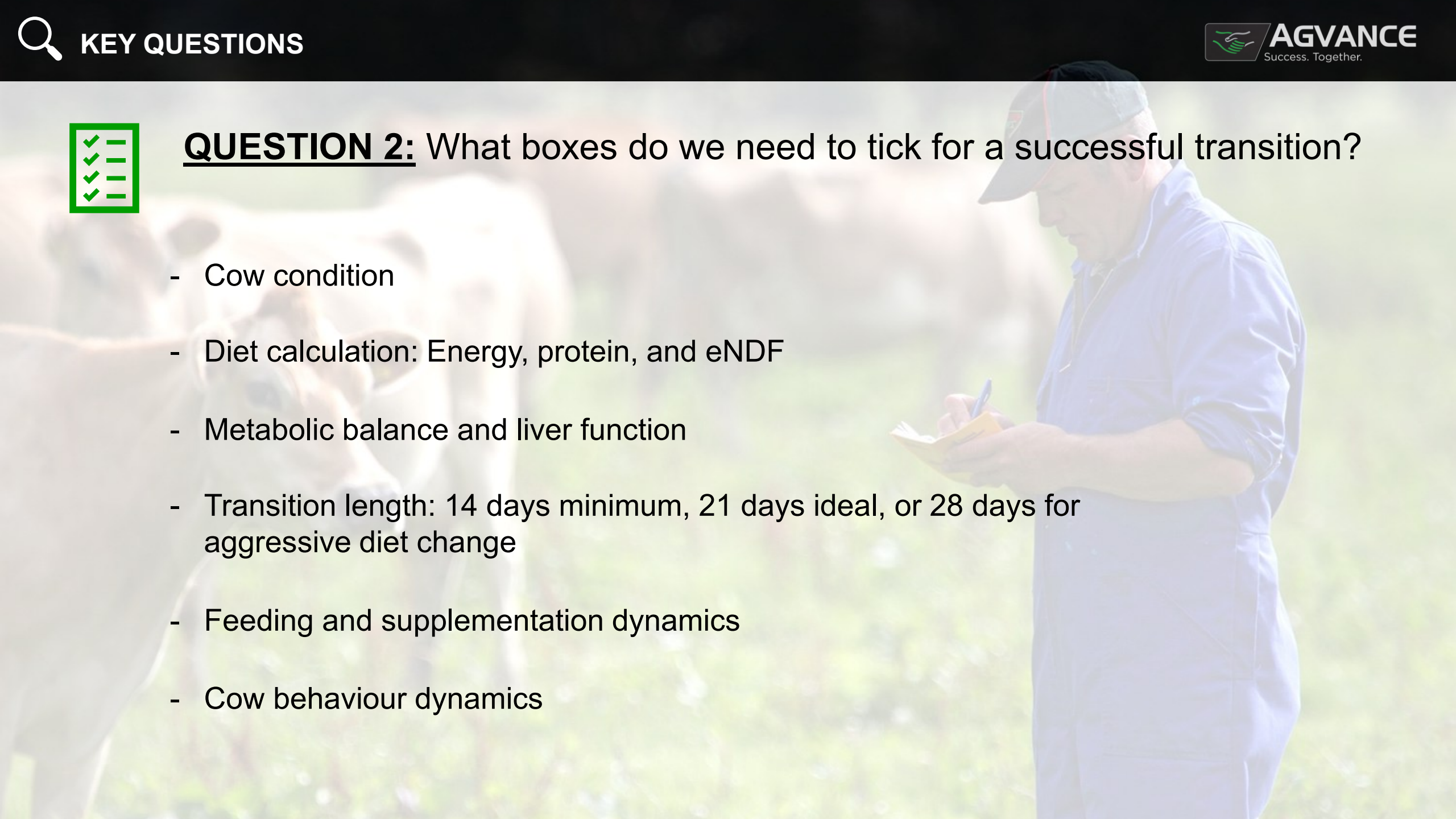
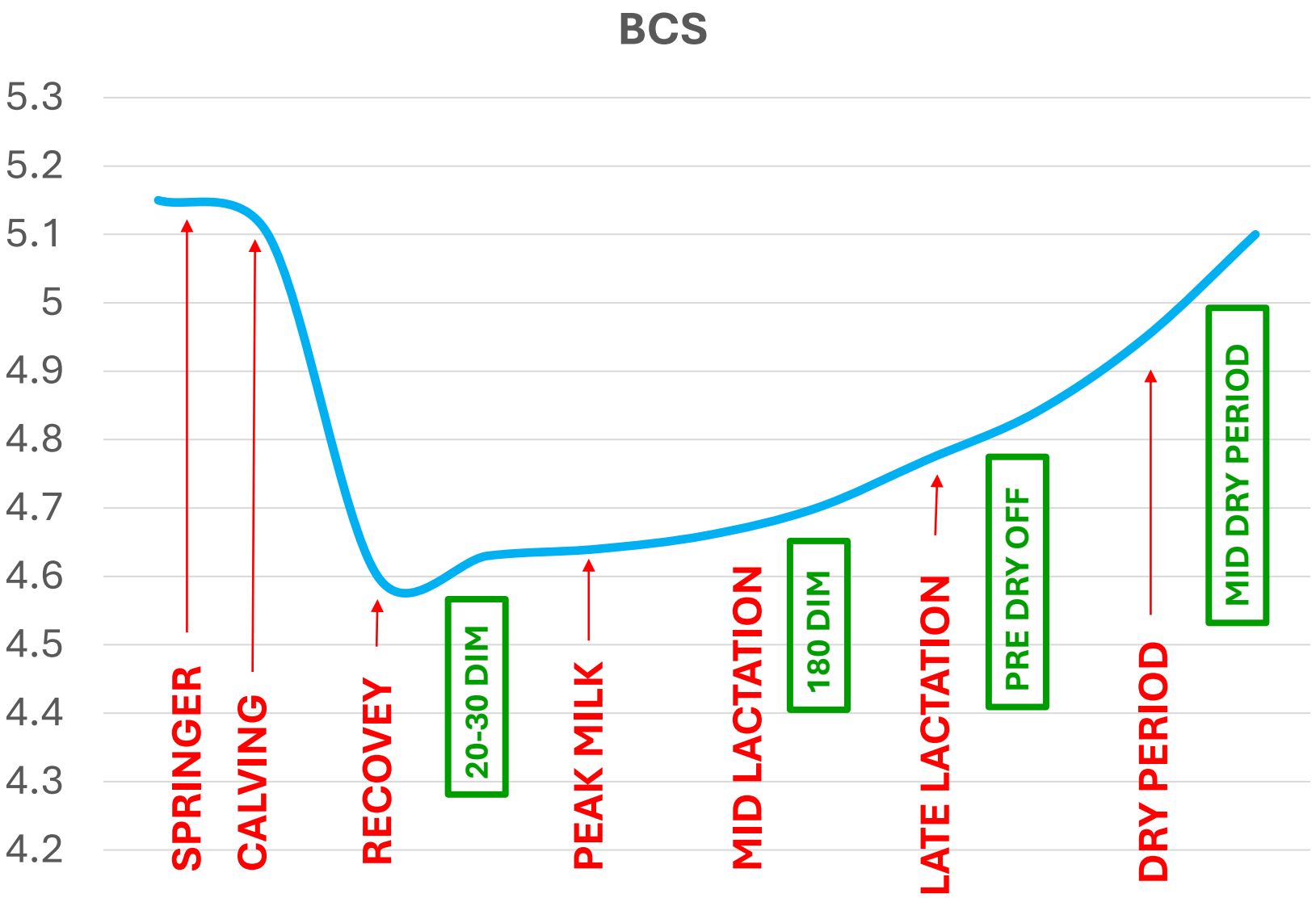


COW CONDITION

- **Aiming for a 4.8 – 5.2 AVERAGE cow condition at calving.**
- **Just as important is the spread of cow condition - it's a numbers game!**
- **Alongside BCS, consider stored fat composition and protein reserves.**

CONDITION WITHIN RANGE	OVER CONDITION	UNDER CONDITION
- Sufficient reserves	- Sufficient reserves	- Insufficient reserves
- Good appetite	- Poor appetite	- Variable appetite
- Optimum recovery	- Liver challenge	- Low condition at peak
- Better peak	- Condition loss too early	- Poor/slow recovery
- Better production/cow	- Variable condition loss	- Low production
- Less days to first cycle	- Poor/slow recovery	- Poor immune function
- Better six-week in-calf rate	- Poor immune function	- Reproduction challenge
- Better liver performance	- Reproduction challenge	- OK liver performance
- Good calving energy	- Poor calving energy	- Variable calving energy
- Good metabolic balance	- V. sensitive to metabolic imbalance	- Sensitive to metabolic imbalance

COW CONDITION



MANAGING ON BCS THROUGH TRANSITION

OVER-CONDITION

- **Cows are sensitive**
- Low energy = condition loss
- **High energy = upset liver**
- Allocate energy at 110%
- **Close-up group important**
- Increase energy to close-ups
- **Quality protein critical**
- Support liver function

UNDER-CONDITION

- Feed transition is more critical
- **Match colostrum feed to transition feed**
- Allocate energy at 100%
- **Don't try to build condition**
- Over-allocate early lactation feed
- **Quality protein + >16% protein**

DIET FORMULATION/CALCULATION

Calculate based on the following rules (based on a 470kg average LWT):

- Feed heifers/young cows separately.
- Close-up cows (2-3 days pre-calve) can be fed a higher energy diet, particularly high-producing cows and over-conditioned cows. It's important they don't lose condition pre-calving.
- Herbage testing is useful for diet calculation on paddocks and silages/hays.
- Allow for wastage based on weather and feeding infrastructure.
- If high level of variability exists in BCS at the end of winter, look at making smaller transition mobs so you can separate the high BCS cows and feed them more.
- DO NOT underfeed cows which are above 5.2 BCS. Protein is also critical for this group.

FEED CALCULATION: ENERGY

Energy is both a positive and a negative in achieving transition success.

- Energy stimulates the release of volatile fatty acids, which are critical in the growth of the rumen papillae.
- Must be kept within a tight range as too much energy signals incorrectly to the liver, firing up the cow too early!
- Energy allocations must be managed carefully based on LWT and cow condition.

80 – 110% of maintenance, around 22-24% of LWT
= 85 – 144ME (380 – 600kg cow)

FEED CALCULATION: PROTEIN

- Protein is a very useful energy source around calving: Via gluconeogenesis, it releases glucose using amino acids rather than fatty acids, helping to reduce the requirement for fat mobilisation/NEFAs.
- It is particularly important to supply a good quality/quantity of protein in over-conditioned cows, cows that have gained condition quickly, and herds that have suffered from clinical or sub-clinical ketosis in the past.
- Protein helps to rebuild the epithelial cells in the rumen papillae, improving nutrient absorption and intracellular pH regulation.

>14% - ideally 16-18% - amino acid supply/profile is critical.

FEED CALCULATION: eNDF - EFFECTIVE FIBRE

Fibre is key to rumen preparation, therefore, transition success and cow recovery.

Fibre performs a variety of tasks:

- **Fills the rumen:** Stretching the rumen wall.
- **Weighs the rumen down:** Stretching weight receptors.
- **Stimulates rumination:** Works rumen muscles.
- **Reduces hunger:** Reducing stress.

Quality of fibre is important - it is hard to beat good quality pasture hay.

>45%, however situation and availability are more important. Therefore ad-lib is my general recommendation.

DIET FORMULATION/CALCULATION

TOTAL: 2.5% LWT = **11.7kg DM**

ME: 25% LWT = **117ME**

PROTEIN: >14-16% = **1755g**

eNDF: >45% (ad-lib) = **>5400g**

EXAMPLE

Pasture = 3kg DM...32ME (@10.8ME)

Maize silage = 4kg DM...45ME (@11.2ME)

Pasture silage = 2kg DM...22ME (@10.6ME)

40Soya30DDG30PKE = 1kg DM...11ME

Pasture hay = ad-lib 3kg DM...24ME (@8 ME)

***Allowing for 10% wastage. In wet weather allow for more depending on the environment and feeding infrastructure.

METABOLIC BALANCE & LIVER FUNCTION

Preparing the cow metabolically ensures that when under stress, she has the best chance to succeed.

Key factors for **metabolic balance**:

- **Calcium balance**
- **Phosphorus balance**
- **Magnesium balance**
- **DCAD & potassium balance**
- **Boron**

Key factors for **liver function**:

- **Amino acids:** Methionine, lysine, histidine.
- **Methyl donors:** Choline, betaine.
- **B-group vitamins:** Biotin, niacin, B12, folic acid, pantothenic acid and riboflavin.
- **Trace minerals:** Copper, zinc, selenium, chromium and iodine.
- **Increased oleic acid:** C18:1/C18:0, C18:3 ratios.

TRANSITION LENGTH

Pre-calving transition is going to happen regardless of what group the cows are in.

Transition length is about managing the diet correctly to help:

1. Recovery post-calving and everything that flows from calving recovery.
2. Getting the liver in the right window.
3. Building metabolic balance and function.
4. Supporting the cow at calving.

Transition length requirements vary: IDEAL = 21 days, SHORT = 14 days, LONG = 28 days

- **IDEAL/21 days = Best practice, gives cow sufficient time to transition efficiently.**
- **SHORT/14 days = OK for minor diet changes, BUT dry period diet must be managed carefully.**
- **LONG/28 days = Ideal for significant diet changes, particularly high energy/>0.5BCS gains over the dry period.**

FEEDING DYNAMICS

Consistency of feed allocation and feed intakes can make a significant difference to transition success.

1. Calculating dry matter carefully with accurate cow numbers.

2. Making sure that each feed planned for colostrums is going into the transition cows and Av. LWT

3. It's important to allocate each feed in the right order:

- Most critical feed first, i.e. largest feed component containing mineral supplements in the morning when the transition cows are at their hungriest.
- Having high-fibre feed always available.

4. Make sure feed face is large enough so all cows can get access without competition - 1m/cow.

5. Weather management, increased feed allocation, drier areas to cut down mud, shelter etc.

Mineral calculation, blending, consistency and palatability are all key in getting the result.

1. Calculating DCAD and dose based on LWT and cow intakes.

2. Mixer wagon blends well, a silage wagon can be variable.

3. It's important to allocate each feed in the right order:
   - Put the mineral supplements in the largest feed component.

4. Make sure the feed face is large enough so all cows can get access without competition - 1m/cow.

5. Increasing Creamasweet or other palatants to 0.1g/cow/day can help.

6. Adding extra DDG and yeast can also help. Adding water to the mix, if using a mixer wagon, can also help increase intakes.

COW BEHAVIOUR DYNAMICS/STRESS REDUCTION

Anything we can do to reduce stress in our transition/calving cows will help improve outcomes.

- **GROUP CHANGE:** Changing cows from one group to another creates stress. Careful planning can help avoid this stress.
- **PEOPLE PRESSURE:** Pushing cows in the paddock or walking to the shed can create stress.
- **HUNGER & THIRST: A**re the biggest contributors to stress in cows. Ad-lib hay is key, along with clean water. Watch close-up cows that don't compete as well!
- **BAD WEATHER:** Challenges create stress, these can cause early condition loss.
- **SHELTER:** Providing shelter and dry areas when wet, cold and windy will help.

THANK YOU FOR ATTENDING

For more information and previous webinars:

- Visit our website: www.agvance.co.nz
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