Feeding Horses During Times of Drought and Hay Shortages

Lack of Rain = Lack of Forage

Drought doesn't just impact the amount of grass in our paddocks.

- Impacts health of our horses
  - Horses designed to trickle feed 20hr/day & have weight of digesta in hindgut
- Increase in horses visiting the vets due to problems e.g., colic & ulcers
  - Grazing too close to the ground
  - Swapping hay types too quickly or overuse of straw
- Impacts availability, quality & price of hay & chaff we offer our horses
  - Reduction in grains & legumes yields reduced
- Hay is only cut once in WA.
  - Rhodes hay is cut earlier compared to cereal or meadow hay.
- Just because we had some rain doesn't mean lack of forage is going away any time soon.
  - Ideas keeping your horses healthy during tough times.

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Roughage is the priority

- Digestive system built to consume roughage
- Horses & ponies need to consume 1.5-2% BWt. /day for forage
  - 10kg for a 500kg horse @ 2% BWt or 7.5kg @1.5%
- Roughage comes from several sources including:
- Pasture i.e.,C4 or C3 various types & quality
- Forage types: Meadow, Oaten, Wheaten, Lucerne, Rhodes, Teff.
  - Chaff : Shandy, oaten, wheaten or lucerne, Green Mix (Rhodes & Lucerne)
  - Multicubes: Hay cubes various types of forage. Needs soaking prior to use.
  - Super Fibres e.g., Lupin Hulls, Beet Pulp
  - Straw : Fed in small amounts to replace portion of hay ~20-30% intake /d.
    - Do not feed straw to horses with history of Ulcers & Colic
    - Research used nutritionally improved Straw @ maximum 50% intake/d for obese horse.

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Why is forage the priority?

- Ideally when pasture is limited, provide ad lib access to good quality meadow hay
  - Not always possible
- Need to look at other hay types & mixing hay types

Mixing hay types is good for horses' biome improves bacteria population

- Issue when you swap forage types over too quickly
- Equine Biome (bugs & bacteria) hindgut need time produce new population of bugs
  - ~14-21d to alter population
- Longer time to swap hay & feed the better esp. if horse digestive or metabolic issues
  - Adding more fibre sources to their hard feeds.
- Always try to keep horse consuming roughage as continuously as possible (4 hr.)
  - Digestive tract functioning to avoid issues e.g., Ulcers or Colic

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Why do I need to change over slowly?

Change Feed /Hay	Risk of Colic
No Alteration	1.0 times
Change over 1-7 days	22.03 times
Change over 8-14days	4.88 times
Change over 15-28 days	2.0 times

REMEMBER : Make all changes to feed & forage including changes in hay or re-introduction of pasture slowly, over min. 14-21 days to avoid digestive upsets.

Reference: Hillyer, M.H.F.G.R. Taylor, C.J. Proudman, G.B. Edwards, J.E. Smith, and N.P. French, 2002
"Case control study to identify risk factors for simple colonic obstruction and distension colic in horses." Equine Veterinary Journal 34 (5): 455-463.

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How to swap over feed or forage

- No sudden changes in hay
- Soak cereal hay to reduce sugars ~30%
- Introduce new low sugar hay over several weeks (biome)
- Use Stevia solution sprayed over low sugar hay to make it taste sweet.
- Stops horse refusing low sugar hay & keep healthy DI
  - Stevia doesn't affect insulin
- Tip: Use "Sugar Free" Berry Cordials containing Stevia in water
- Use in hot weather to soften & improve palatability of poor-quality forages

A Guide to Swapping Over or introducing New Hard Feeds & Hay Types /Supplements:
Day 1 - Day 3: 80% of old feed / 20% of new feed
Day 4 - Day 6: 70% of old feed / 30% of new feed
Day 7- Day 9: 60% of old feed / 40% of new feed
Day 10 - Day 12: 50% of each feed
Day 13 - Day 15: 40% of old feed / 60% of new feed
Day 16 - Day 18: 30% of old feed / 70% of new feed
Day 19 - Day 21: 20% of old feed / 80% of new feed
Day 22: 100% New feed

Reference: Hillyer, M.H.F.G.R. Taylor, C.J. Proudman, G.B. Edwards, J.E. Smith, and N.P. French, 2002 "Case control study to identify risk factors for simple colonic obstruction and distension colic in horses." Equine Veterinary Journal 34 (5): 455-463.

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Ask questions on new hay

- Be cautious about purchasing new hay
- Ask questions e.g., Hay been Tested ? Do you have ARGT Certificate ?
- See Certificate : If possible, check for date & address on certificate
- Ask friends using the hay e.g., any problems good or bad
  - For example : Barley grass, Weeds, Mould, Stored outside
- Make sure the hay you are getting is still safe for your horses to eat
- Remember:
  - Hay should come from a trusted seller & needs to be “horse quality”
  - Silage is not suitable for horses
  - Last season hay is acceptable must be clean & mould free
    - Increase fat soluble vitamins & amino acids due to losses in older forage sources
- Tempt horse to eat new hay & introduce slowly

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Hay Quality

- Hay is usually classed as good or poor-quality
  - Digestibility = ADF (Acid Detergent Fibre) & NDF (Neutral Detergent Fibre)
- Measures of the fibre components in the hay
- Indicate digestibility & energy availability
  - Higher ADF % & NDF% higher insoluble fibre (lignin)
- Poor quality hays can still be beneficial for horses that need lower amounts of energy
  - Need 1.5% of forage in diets for health & weight in hindgut
- Still provides a necessary source of long-stem fibres for digestive health without excessive calories
- Keeps horse chewing to create saliva to buffer stomach acid

High Quality	Low Quality	Unsuitable
ADF 25-35%	ADF 35-45%	NDF >69%
NDF35-55%	NDF 55-70%	

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Use of Poor-Quality Forage

- Straw can be used to replace a portion of the hay in your horse's diet to help extend hay supply.
- ~20% of their daily fibre/forage intake
- Under 69% NDF otherwise too high in lignin (insoluble fibre)
- Feeding Straw need supplement essential amino acids e.g., lysine & methionine
- Vitamins (fat soluble) & minerals meet their daily needs
- Make sure straw has been ARGT tested
- Straw never fed to foals, weanlings or yearlings as their digestive system is not mature
  - Hindgut is only fully formed around 18-24 months
- Do not feed to horses with history of ulcers & colic
- Straw is not laminitis friendly. Straws come from cereal crops
  - When testing done by wet Chemistry USA av. Straw NSC% over 17%

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Conserve the hay that you've got:

- Every mouthful counts!
- Store forage off the ground & in a dry safe place.
- Nothing worse than looking precious hay trampled into a urine soakedmess.
- Use a horse-safe feeder or hay net to reduces wastage
- Make sure holes are not too small
  - Can put horses off eating hay altogether or not eating correct amount
- Hay nets are like bra's there is one for everyone!
- Avoid putting hay out around gateways, troughs, on the ground yard or stables where they use it as toilet paper!
- Meter hay out throughout the day
- Feed in smaller amounts make sure they eat what is there

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Hidden starches & sugars

Av. Sugars & Starches WA hay	Low Sugar Meadow Hay	Meadow Hay	Rhodes Hay	Lucerne Hay	Teff Hay	Oaten Hay	Wheaten Hay	Straw	Barley Hay
WSC%	9.25	16.3	8.75	8.7	13.7	29.4	20.8	13.68	16.67
ESC%	5.3	10.6	5.85	5.1	12.9	15.2	12.9	8.85	11
Starch%	0.67	1.2	1.8	1	2.3	6.88	8	3.87	6.62
ESC + Starch%.	5.97	11.8	7.65	6.1	15.2	22.08	20.9	12.72	17.61
NSC%	9.92	17.5	8.55	9.7	16	36.28	28.8	17.55	23.28

Highest Oaten hay analysis for sugar for Southwest WA was 42.63% NSC.
Which equals 426g of sugar for every kg of oaten hay eaten

Hay samples tested analysed by Equi Analytical Results are for WA

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Size & Number of hard feeds/day

- Feed little & often (optimal efficiency digestion in stomach & small intestine)
- Stomach = ~8-12L capacity
  - Limit 1.5kg of grain per hard feed
- When in light work feed at least twice daily (hard feeds)
- When feeding over 4.5kg concentrates per day
  - Up to 3 to 4 hard feeds per day
- Chaff used to slow down rate of digestion in SI
  - Increase retention time through SI = better digestion
- Swapping from grains to “super fibers”
  - Lupin Fibre Cubes, Beet Pulp, Soya Hulls, Copra Meal ~11%NSC
  - Approx. same DE but it reduces starch
- Think of using fat & oils sources before grains
  - 250ml or 1 cup oil = 1kg Oats
  - Reduce Vol. of feed size

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Changed hay? Rebalance their diet!

There are many reasons why rebalancing is important, not just because of the varying energy and protein levels of different hays:

- Without access to pastures, they may need more fat-soluble vitamins and omega-3.
- When feeding certain hays (like Teff), you will need to supplement to protect against oxalates and prevent bighead disease.
  - Please note that Teff isn't always low in sugar and starch and safe for laminitis/metabolic prone horses and ponies.
- The **starch** and **sugar** content of hay can be high, so may need to be balanced in other areas of the diet.
  - 'Cereal' refers to hays and chaffs made from oaten, wheaten and barley crops. The grains are naturally high in sugars and starch, but so are the leaves and stems of the plant.
    - Oaten - NSC 31.5%. WA's Oaten hay consistently tests between 30-38% but has been recorded as high as 42.63% in Southwest WA! Wheaten - NSC 28.8%
- If feeding straw, the protein in other areas of their diet may need to be boosted

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What should a working horse diet look like ?

1) Low Sugar & Starch Forage/Fibre
   Hay, pasture, chaff min. fed at rate of 2- 1.5% BWt. as fed DM kg

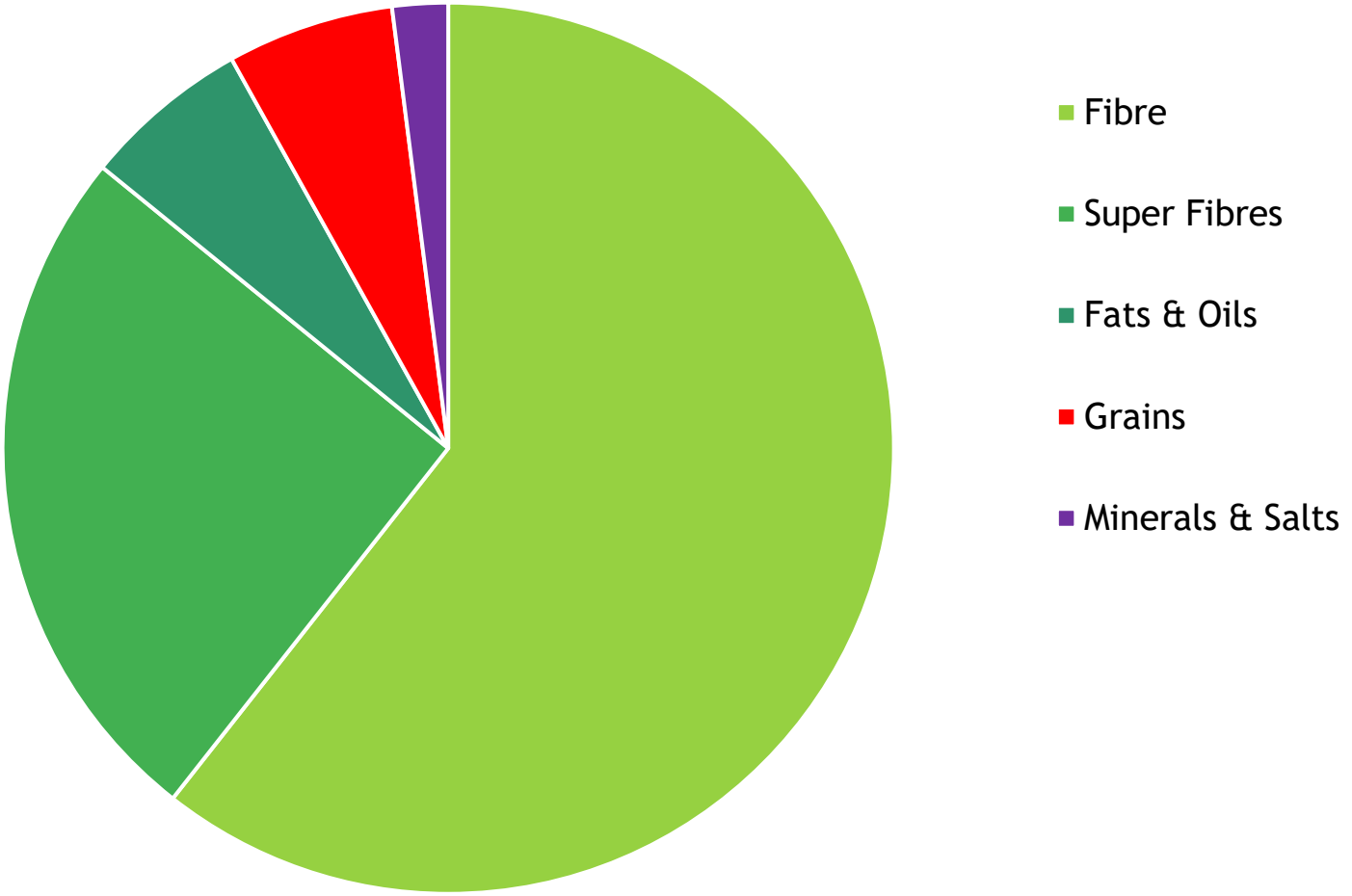
2) Diet supplemented by super fibres (beet pulp, soya hulls, lupin hulls, copra meal)

3) Fats & Oils Feeds - High fat, RBO, SBM, Canola Meal, Linseeds, Oils

4) Optional - Grains or legumes /grains containing hard feeds
(depending on individual horse & type of work)

5) Vitamins & Mineral supplement or balancer pellets to balance diet
   + Salts/Electrolytes

p.s. Don't forget the carrots ☺



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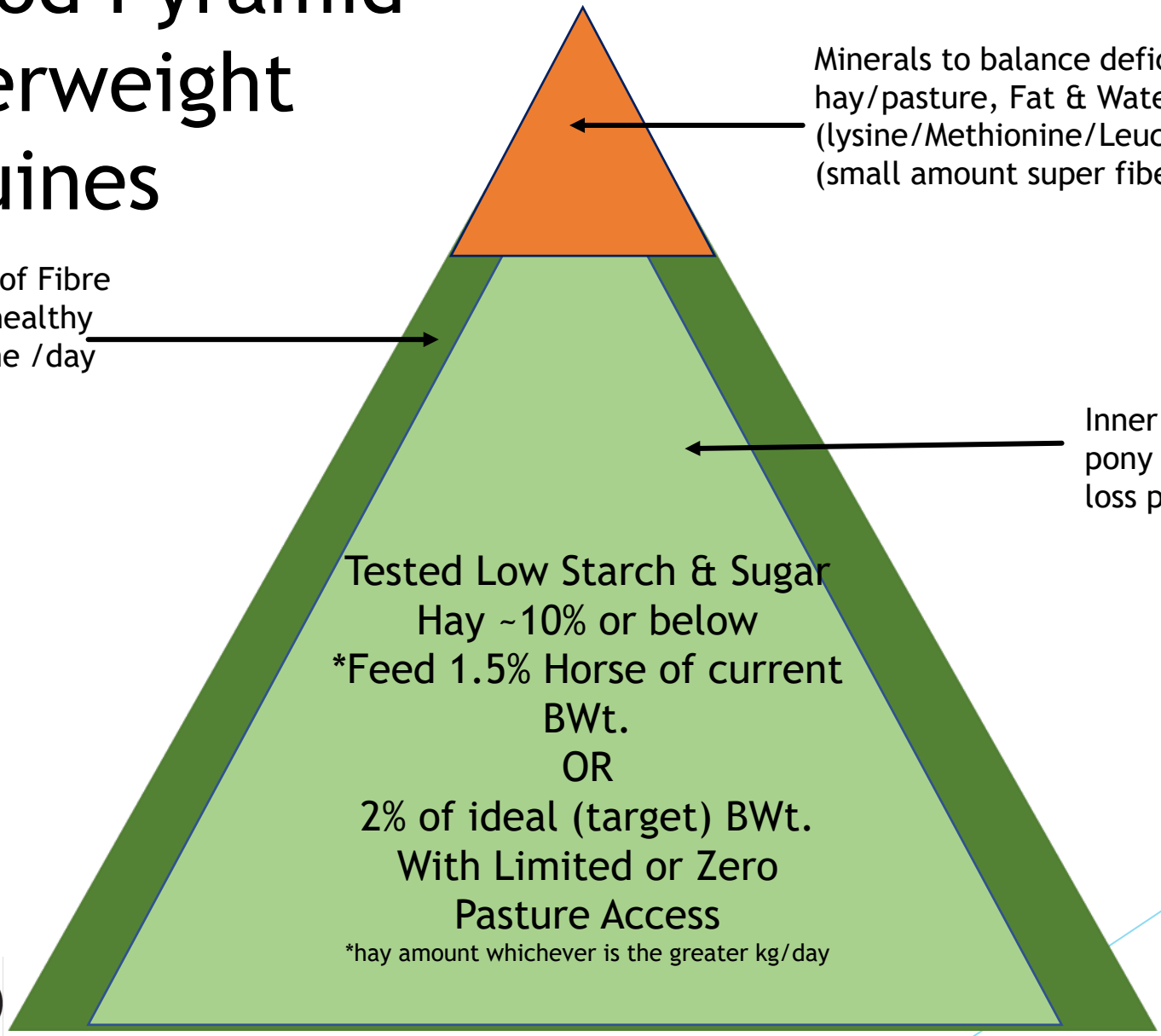
Equine Food Pyramid for Overweight Equines

Minerals to balance deficiencies in hay/pasture, Fat & Water Vitamins, aa (lysine/Methionine/Leucine), Omega 3 & salt (small amount super fiber as carrier)

Outer Area = Quantity of Fibre (DM) Horse or Pony (healthy weight) could consume /day

Inner Area = amount a horse or pony should eat to help weight loss per day



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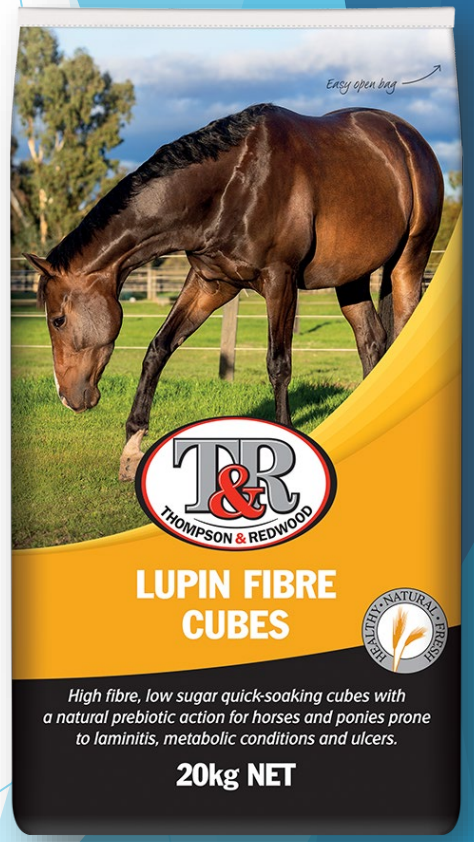
Substitution for Chaff with Lupin Fibre Cubes

- Chaff is just chopped up hay! Hay currently very expensive
- LFC used to add fibre & nutrients to horse's diet
  - You can use them to replace chaff, or 'shandy' them with chaff.
- LFC expand when soaked to give your horse a good gut fill.
- LFC work like chaff to slow feed down in DI & maximise absorption & hindgut fermentation.
- LFC low in sugar & starch with only 5.3% NSC.
  - Lower NSC than lucerne chaff, & substantially lower cereal chaffs.
- LFC are a fibre supplement or replacement for chaff
  - Don't include vits & mins to make them easy to incorporate into your horse's diet.
- LFC keep your horse's gut healthy & keep feeding their good gut bacteria
- LFC provide slow release, sustainable & low fizz energy.
- LFC contain quality amino acids, half Crude protein of whole lupins.
- LFC are not a complete supplement for hay & forage
- LFC maintain healthy fibre levels in your horse's diet, fed within the recommended rate



Meet the new COMPLETE feed on the block...

What is Lupin Fibre Boost?

- Quick-soaking, 4.21% NSC super fibre cube fortified with vitamins & minerals.
- LFB is a nutritious mash suitable for all horses & ponies.
- Made from quality lupin hulls to provide cool, low-fizz energy & added prebiotics & probiotics to promote gut health & function
- Highly palatable & digestible fibre-based mash.
- Provides cool, slow-release energy for horses across all ages, disciplines & workloads
- Natural source of high-quality proteins and essential amino acids, including lysine and methionine to support health, topline building & recovery
- Low sugar and starch feed (NSC 4.21%) suitable for horses & ponies prone to laminitis, ulcers, EMS, PPID & other metabolic conditions
- High in super fibre, with added pre & probiotics to increase beneficial bacteria in the hindgut & promote gut health
- Can use them to replace chaff, or ‘shandy’ them with chaff or your horse's feed for extra fibre

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Low feeding rate – and swells to more than double the dry volume!

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Had rain? Still need to manage grazing

- During drought can be a good idea to move to a paddock conservation system.
- Fencing horses into smaller areas to preserve remaining grasses by rotating, strip grazing & resting paddocks frequently.
- Prevent overgrazing fragile pastures, which could otherwise cause long term damage.
- Important not to rush horses back onto pasture straight away
  - **Weeds**: weeds tend to be the first plants to grow post a drought. Keep a close eye on your paddocks and manage weed growth e.g., Capeweed
  - **Pasture growth takes time:** establishing new pastures takes time. The plants need to get their roots down and a reasonable amount of leaf before they are strong enough to withstand horses grazing.
  - **Short, new growth**: short, new growth in pastures is higher in NSC & fructans/starches which can be dangerous for horses prone to laminitis or metabolic conditions. Affect behaviour.
  - **Reintroduce pasture slowly**: if horses have been off pasture like all feeds, needs to be reintroduced slowly to avoid upsetting gut microbiome & prevent digestive upsets.

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Many thanks for listening ☺

Any Questions ?

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