

WHOLECROP HARVEST

40% + DM Inoculants versus acid for Fermented crops: corn cracker screwed right down 20-25% Starch

- The best inoculant is Biotal's "Whole Crop" containing Buchneri. It produces acetic acid, which controls moulds and yeasts and heating. It is far superior to any other traditional inoculants that can increase the moulding & heating capacity of 40% DM crops.
- Buffered 56% propionic acid at 2kg per ton fresh weight comes close to the Biotal product but had more yeasts / moulds.
- In a recent trial published in the US Journal of Dairy Science, early heading low starch barley silage wilted to 40% DM, the results are as follows

Control	340 hrs to deterioration
Buchneri	730 hrs
Lactobacilli plus enzymes	150 hrs
Buffered Propionic	620 hrs.

Buchneri had the lowest Yeasts and moulds. Early heading barley silage used to be the main crop made in the UK – but has been replaced by grain filled crops so no independent information is available at dry matters in excess of 40% DM. In this trial there wasn't much secondary fermentation in the control - but its the effect overall that's important. It's interesting to note that all silages lost approx 10% DM in the ensiling process.

50-65% DM crops with the corn cracker screwed right down. Straight Urea is fine – 40kg /t but is not satisfactory with Forage processor milled crops. Buchneri has been recently used at these dry matters also – but no independent information is currently available save for comments made by one contractor at whole-crop.com where stability of some clamps was questioned if a forage-processing mill was deployed on high DM crops. Maybe there was just too much available starch in a crop at high DM where it is difficult to exclude air. On the other hand Buchneri has been used successfully in 35% moisture crimped or ground grains both here and the US. U.Wisconsin has evaluated [Buchneri](#). As with any fermented product fast feed out rate is required in the heat of the summer – preferably a foot a day.

60+% DM Home n' dry / Alkalage- used to be Dugdales, now Volac. – Contractors now are investing in the Class forage-processing mill – essential at these dry matters to ensure harder grain is pulverised – other wise to much passes straight trough the animal. There are acids - based on propionic acid - eg Preserve - pricey.

Recent independent trials are reported from Harper Adams with encouraging results. – Again see whole-crop.com. In this trial based on one-third high quality low acid grass silage as the basal diet, three supplemental energy sources were evaluated. Lactose appeared to be superior vs. molasses and conventional wheat based starch supplements. Despite the effect of ammoniation on the pH of the Alkalage it is likely the very high and rapid fermentability of the wheat grains contributes to acid load. In effect very high DM wholecrop is chopped straw and ground wheat. Lactose does not have such an effect on rumen acid load – compared to molasses and of course wheat based starch-based supplements.

In Conclusion There is no utilised crop yield benefit without the forage-processing mill. Theoretical Length of Cut must be adjusted to $\frac{3}{4}$ " otherwise there is little effective fibre.

Feeding Whole crop IT ISN'T MAIZE.

If milled –

- Fine at a modest inclusion levels with v high yielding herds (+10,000L) with a minimum of 30% grass silage in the Forage dry Matter. Great care must be taken with the freshly calved cow - but significant quantities can be fed at later stages.
- Effective fibre / as a balance to excess protein at grass / grass silage for 7-9000L herds in quantity. – providing TLC raised to $\frac{3}{4}$ ". The forage processing mill does NOT improve the very poor digestibility of straw.
- Further nutritional strategies need to be developed to accommodate the very high yielding herd to ensure that excess acid load does not occur. In particular the transition from calving to full ration

If not milled

- Is a moderate energy material and typically requires supplemental fat / energy sources to redress energy deficit at high yield.
- Great for dry cows to cut out milk fever and keeping an expanded gut that would otherwise shrink. In practical terms however - big bale grass silage taken relatively mature at high DM is sometimes preferred.

Economics Briefly

At maturity - 65% moisture there is up to 25% more crop but up to 25% is wasted without the forage-processing mill. That puts the economics similar to Maize silage with its lower rate of AAAid (approx £35/ac) - but at 25% and less utilised yield per acre.

Recommendations are

- In Maize growing areas, once fibre needs are satisfied combine combine combine. Keep the grain and straw separate. Conserving damp grain is simple and we know exactly how much straw is fed - and it all gets used. There are benefits to using slowly fermentable urea treated whole grain. That is not to say that clients should avoid experimenting with Alkalage – either as High Moisture Ear Wheat or 65+%DM Alkalage.
- In Grassy Areas Without AAAid - economics are dubious. Farms with own spare capacity tackle for grass silage should not grow.
- In Grassy Areas with AAAid economics are reasonable where the farm has minimal kit
 - To achieve high utilised yield per acre ensure the crop is taken at maturity (grain 35% moisture) with a forage processing mill with TLC set at a minimum $\frac{3}{4}$ "
 - At maturity use Home n' dry or propionic based additive – remember there is limited impartial information based on randomised trials for these materials – but what there is us promising.

- It may be possible to purchase Urease (the enzyme that ensures release of Ammonia from urea) and deploy feed grade urea with a little water as low cost alternative to Home n' dry.