GUIDELINES TO ADAPT **MINERAL SUPPLEMENTATION DURING HEAT STRESS PERIOD**

pHix-up®

1 Have key information available and ready to use

Table 1. Macro mineral recommendations (Na, K, Mg) during heat stress period

Temperature Humidity Index (THI)	72	75	78	Farm diet
DMI (kg/day)	24.1	22.9	21.7	
K requirement (% DM)	1%	1.15%	1.30%	
Na requirement (% DM)	0.18%	0.23%	0.28%	
Mg requirement (% DM)*	0.25%	0.31%	0.37%	

**magnesium content adapted in order to compensate for the decreased absorption linked to K supplementation*

Table 2. Buffers in the diet

Buffer composition	Dosage in diet g/cow/day

2 Adapt pHix-up dosage in order to maintain a stable pH at the right value

Table 3: Buffers in the diet and their neutralising capacity (NC)

Buffer	Dosage in diet g/cow/day	Neutralising capacity (meq/g)	Ratio vs pHix-up
Sodium bicarbonate		12	3.25 : 1
Acid Buf		20	1.9 : 1
pHix-up*		39	1

**125g/cow/day is the maximum dosage*

If another buffer is used in the diet, calculate the buffer neutralising capacity (NC) that will be replaced by pHix-up and then divide it by pHix-up NC.

If diet includes already pHix-up, it is possible to increase dosage by 5 to 10g/cow/day in order to support the rumen environment during heat stress.

Example: *Sodium bicarbonate at 250g/cow/day (Neutralising capacity = 250*12 = 3000 meq)*
Solution: *Replacement with 85g/cow/day of pHix-up (Neutralising capacity = 85*39 = 3315 meq)*
pHix-up at 85g/cow/day has a higher neutralising capacity than 250g/cow/day of sodium bicarbonate

3 Potassium and magnesium supplementation

3.1 Adapt potassium intake

Example: *85g/cow/day of potassium carbonate (49% K) brings 41g of K*

3.2 Check magnesium intake

(i) When 10g of K are added, add 4g of Mg
(ii) Maximum Mg content at 0.6% DM in the total diet

Example: *pHix-up (48.5% Mg) at 85g/cow/day covers Mg requirement: it brings 41g of Mg*
(i) Check Mg supplementation according to K content
(ii) Check total Mg content in the total diet

4 Add sodium intake

Example: *45g/cow/day of sodium chloride (39% Na) brings 17g of Na*

5 Solutions proposed during heat stress period

Table 4: Solution with sodium bicarbonate during heat stress period

A

Heat stress supplementation	Dosage in diet
$NaHCO_3$ (g/cow/day)	250g
K_2CO_3 (g/cow/day)	85g
MgO (g/cow/day)	40g

B

Table 5: Solution with pHix-up during heat stress period

Heat stress supplementation	Dosage in diet
pHix-up (g/cow/day)	85g
K_2CO_3 (g/cow/day)	85g
NaCl (g/cow/day)	45g

With pHix-up, the mineral intake during heat stress is reduced by 40% (215g vs 375g) and the cost per cow per day is reduced by 2 to 3 cents.

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