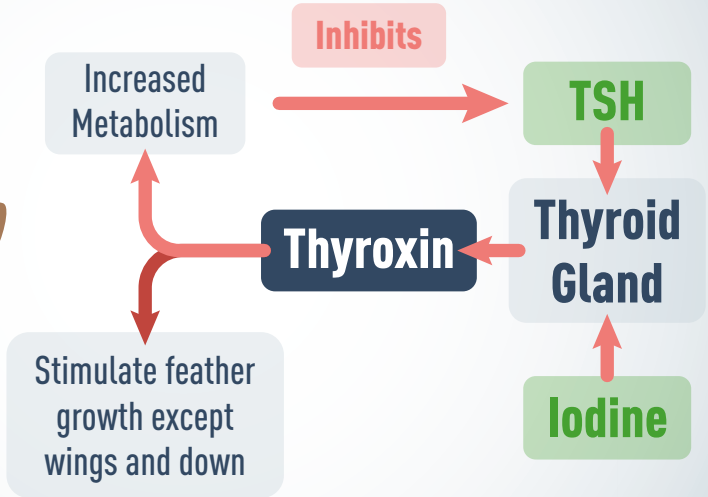




Feathers nutrition





Checklist

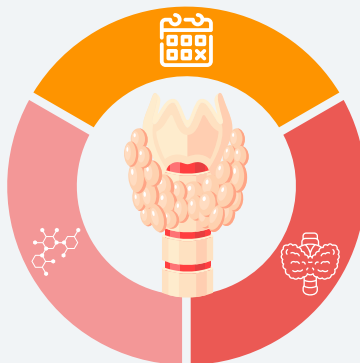
Malabsorption syndrome

Oral consumption of PCB

Anti-thyroid compounds vary even in new rapeseed cultivars

**Glucosinolate (GS) affected by
Season (Jul-Aug GS increase 80%)**

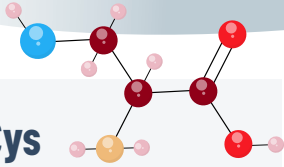
**Gossypol (CSM)
may also be
antagonist**



**Disease
conditions can
affect thyroid**



How to avoid losing feathers



Met+Cys

- Ratio Met+Cys / Lys > 85%
- Don't reduce Met if you want to control egg size**, reduce all AA proportionally.
- In case of **oxidative stress**, the needs Met+Cys will increase, so if the needs aren't fulfill feathering will be compromised.

Fine particles components



- Fine particles of feed** are rich in components that can trigger losing feathers at the farm.
- Be sure that the birds **eat all the fine particles are eaten at farm**. The feeder should be once per day emptied during noon.
- Once a year **control the mixability of the mixer** and adjust the mixing time.

Energy

- Diets high in protein and low in fat increase the catabolism of amino acids as energy.
- The use of amino acids can generate nutrition unbalanced that can created unwanted behavior.





TRP and Feather Pecking

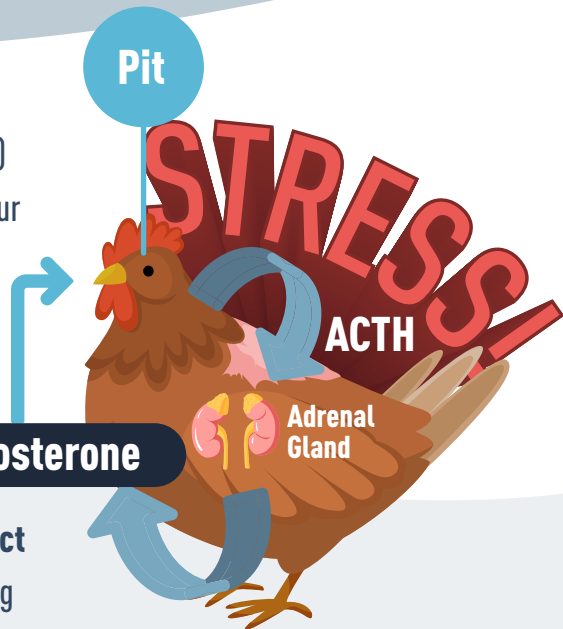
5-HT & Brain Activity

- Corticosterone \uparrow 5-HT (serotonin)
- 5-HT stimulates adaptive behaviour
- Strong Genetic Component
 - Proactive (aggressive)
 - Reactive (flight)

Corticosterone

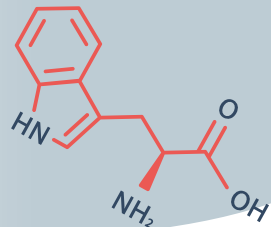
5-HT Feather Pecking Effect

- \downarrow 5-HT \uparrow feather pecking
 - High FP strains \downarrow 5-HT
- Dietary TRP \uparrow brain 5-HT
 - \downarrow feather pecking





Impact of the Tryptophane



Dietary Tryptophan influences Feather Pecking

- Increased dietary TRP decreased feather pecking.
 - In growing bantams, 0,026% vs. 0,24% (Savory et al, 1999).
 - Growing SCWL chicks (0,16% vs. 2.0%) in High and Low feather pecking strains (Hierden et al, 2004).
- Decrease TRP level in brain increases pecking (layers).
- TRP and LNAA (ILE, LEU, VAL, TYR, PHE) enter brain on same transporter system.
- Excess LNAA may decrease TRP in brain and could impact feather pecking behaviour.

Ingredients that can impact dietary TRP/LNAA levels

- LNAA frequently not tracked in formulations.
- Anything with a low TRP/LNAA ratio could decrease TRP transport to brain and therefore influence feather pecking.



	*NRC	Corn	Wheat	SBM	RSM	CSM	PNM	CGM
TRP%	,2	,06	,16	,74	,44	,50	,48	,36
CP%	23	8,5	13	47,5	35	41	92	60
TRP/LNAA	,047	,025	,055	,060	,054	,058	,045	,016



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