TITIK KRITIS MONITORING PERFORMA BROILER MODERN SAAT KEMARAU TIBA

eko, DVM (private commercial broiler farm consultant)





Disiapkan untuk webinar "POULTRY INDONESIA FORUM"
"Musim Kemarau Datang, Waspada Penyakit Masuk ke Kandang "
12 Juni 2021

Outline

- Prediksi BMKG : (peralihan) Musim Kemarau 2021
- Karakter Broiler Modern
- Titik Kritis Monitoring Parameter Performa dan Upaya Teknis Penyesuaian Tatalaksana Pemeliharaan

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Commercial Broiler Farm Consultant

Outline

- Prediksi BMKG : (peralihan) Musim Kemarau 2021
-
-

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- AWAL MUSIM KEMARAU TERJADI DI BULAN MEI-JUNI 2021

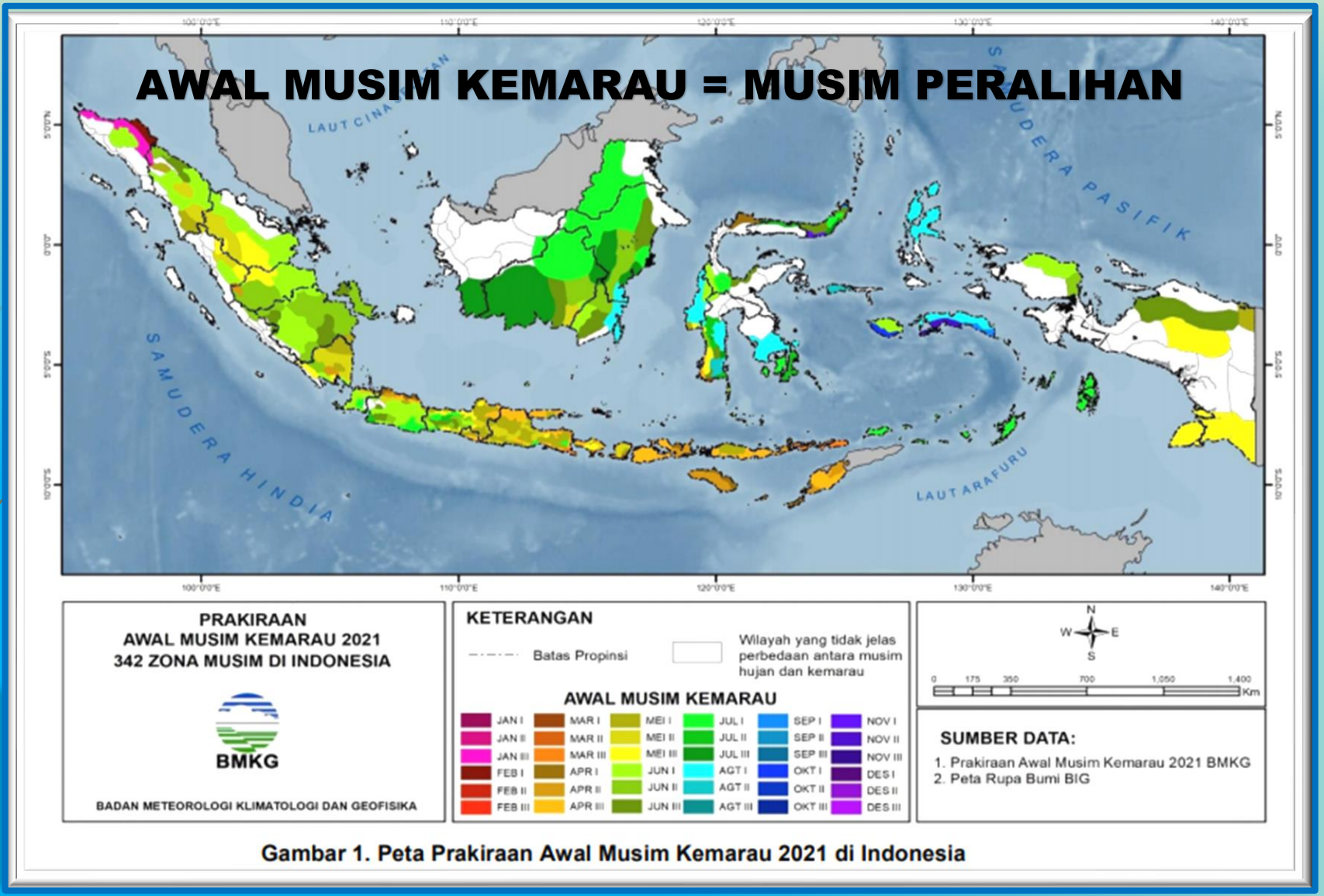
(MASA PERALIHAN PERGANTIAN MUSIM)

- PUNCAK MUSIM KEMARAU TERJADI DI BULAN AGUSTUS 2021

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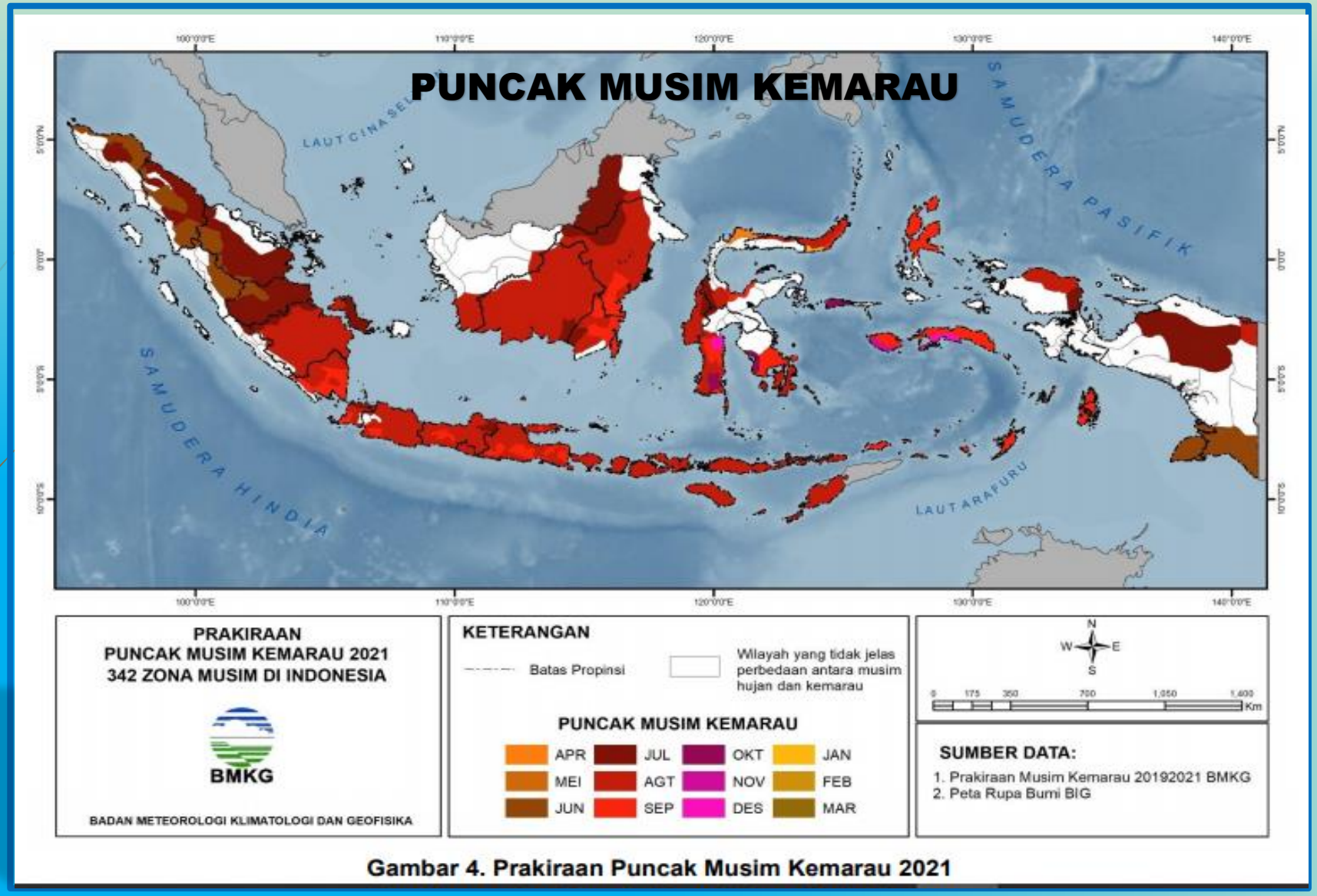
AWAL MUSIM KEMARAU = MUSIM PERALIHAN



Gambar 1. Peta Prakiraan Awal Musim Kemarau 2021 di Indonesia

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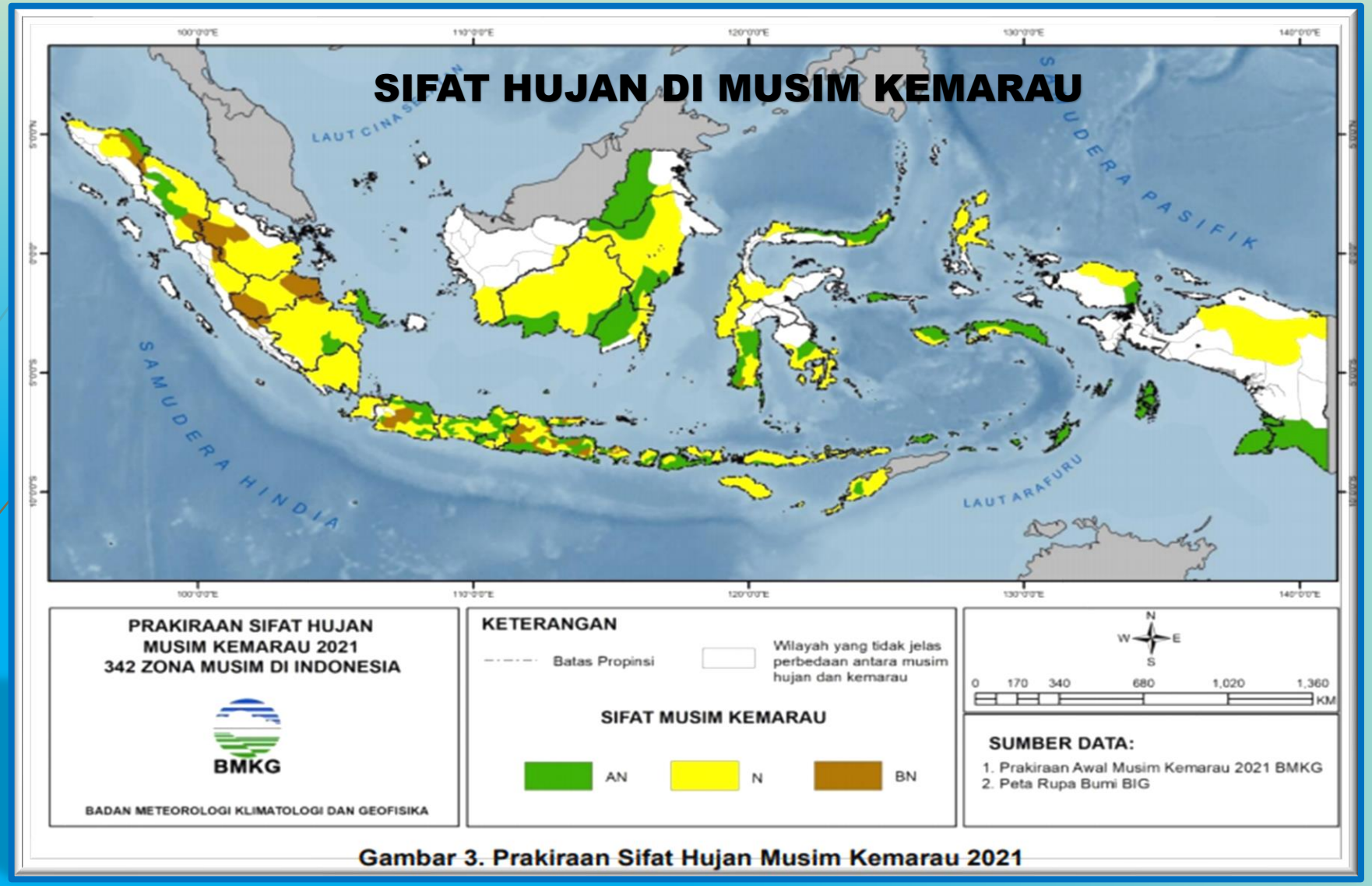
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Gambar 4. Prakiraan Puncak Musim Kemarau 2021

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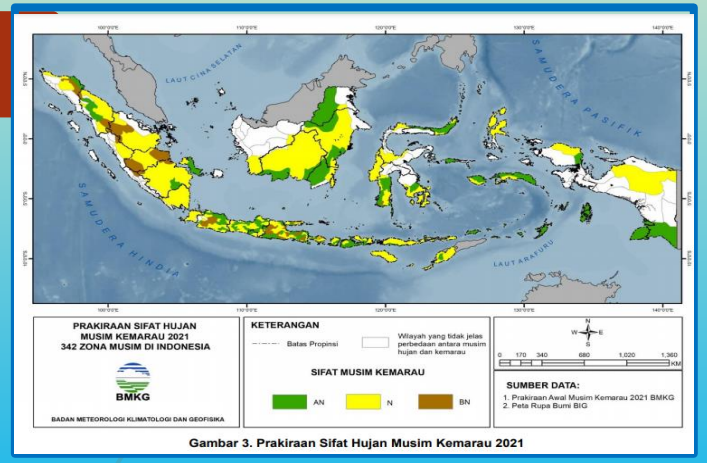
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Gambar 3. Prakiraan Sifat Hujan Musim Kemarau 2021

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Gambar 3. Prakiraan Sifat Hujan Musim Kemarau 2021

TITIK KRITIS PEMELIHARAAN BROILER MODERN DI MUSIM **KEMARAU** :

- DI AREA DENGAN **SIFAT HUJAN DI ATAS NORMAL**
- DI AREA DENGAN SIFAT HUJAN NORMAL
- DI AREA DENGAN SIFAR HUJAN DI BAWAH NORMAL

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Outline

- Karakter Broiler Modern

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KARAKTER BROILER MODERN



- PERTUMBUHAN YANG SANGAT CEPAT :

1. MENIMBULKAN **INTERNAL STRESS YANG TINGGI**
2. SENSITIF TERHADAP **SUHU** DAN **KELEMBABAN (HEAT STRESS)**

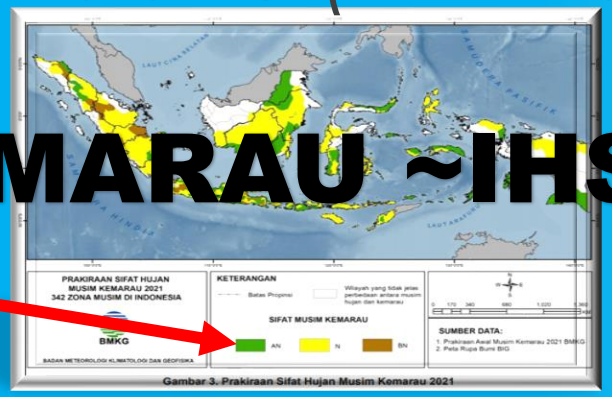
KARAKTER BROILER MODERN

- BANYAK SYARAT AGAR KONDISINYA NYAMAN :

1. (T tubuh-T lingk.)≥ 8°C
2. (T rata-rata MALAM-T rata-rata SIANG) ≤ 8°C
3. RELATIVE HUMIDITY / KELEMBABAN ≤ 70%
4. INDEX HEAT STRES < 160
5. SUHU REKTAL :

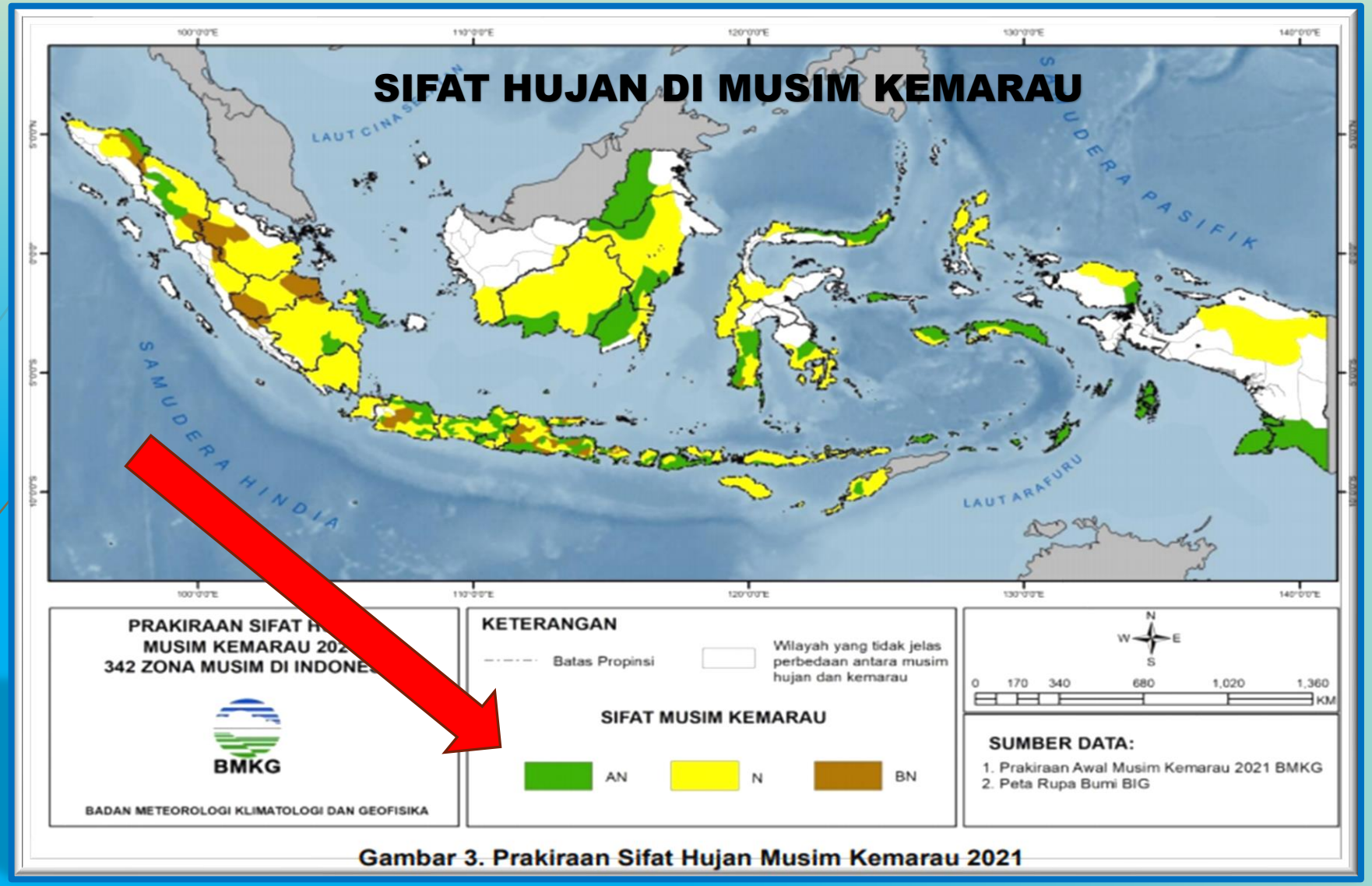
   39.5-40.6 °C (RH < 70%)

MUSIM KEMARAU ~IHS TINGGI



Gambar 3. Prakiraan Sifat Hujan Musim Kemarau 2021





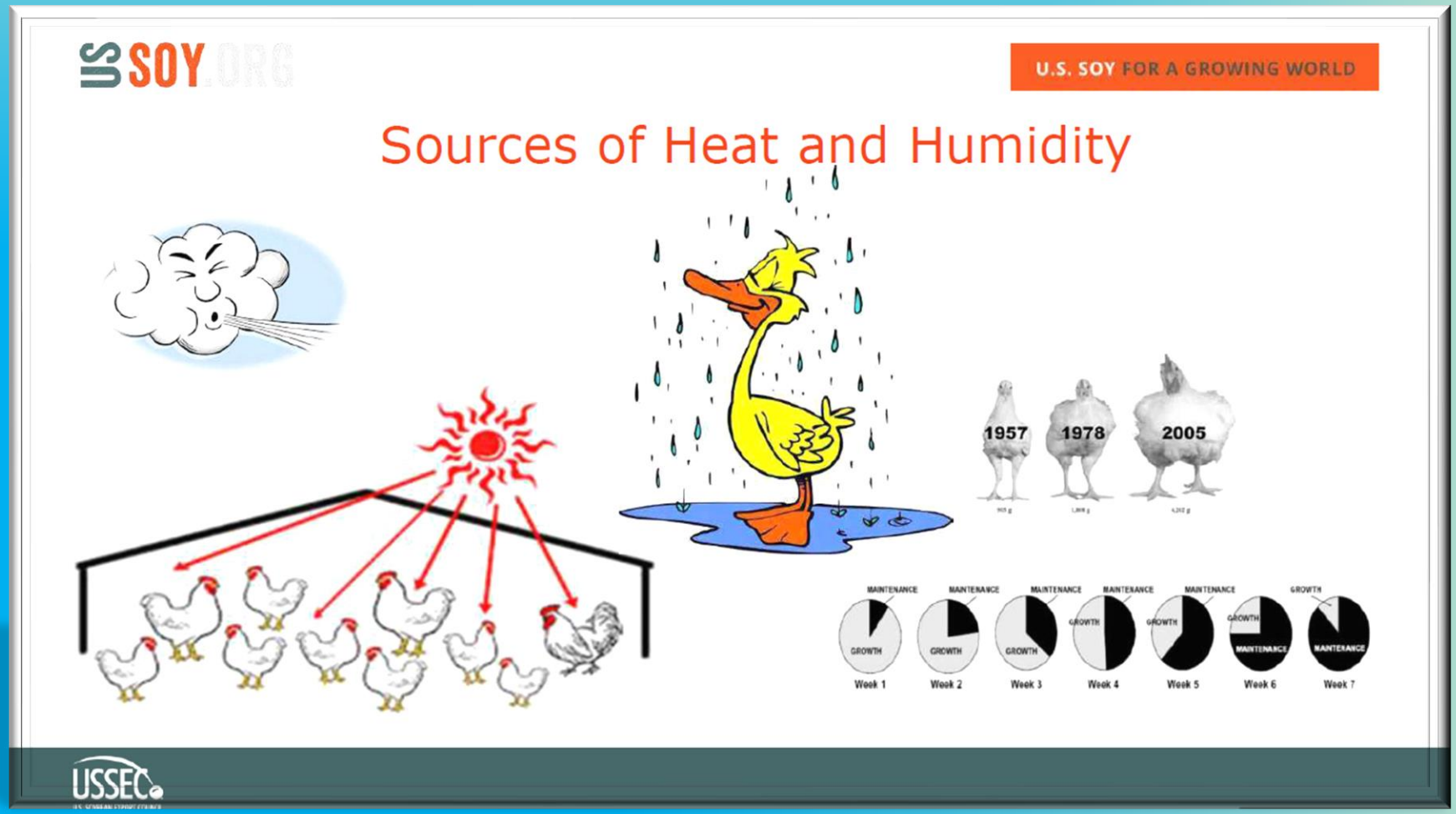
Gambar 3. Prakiraan Sifat Hujan Musim Kemarau 2021

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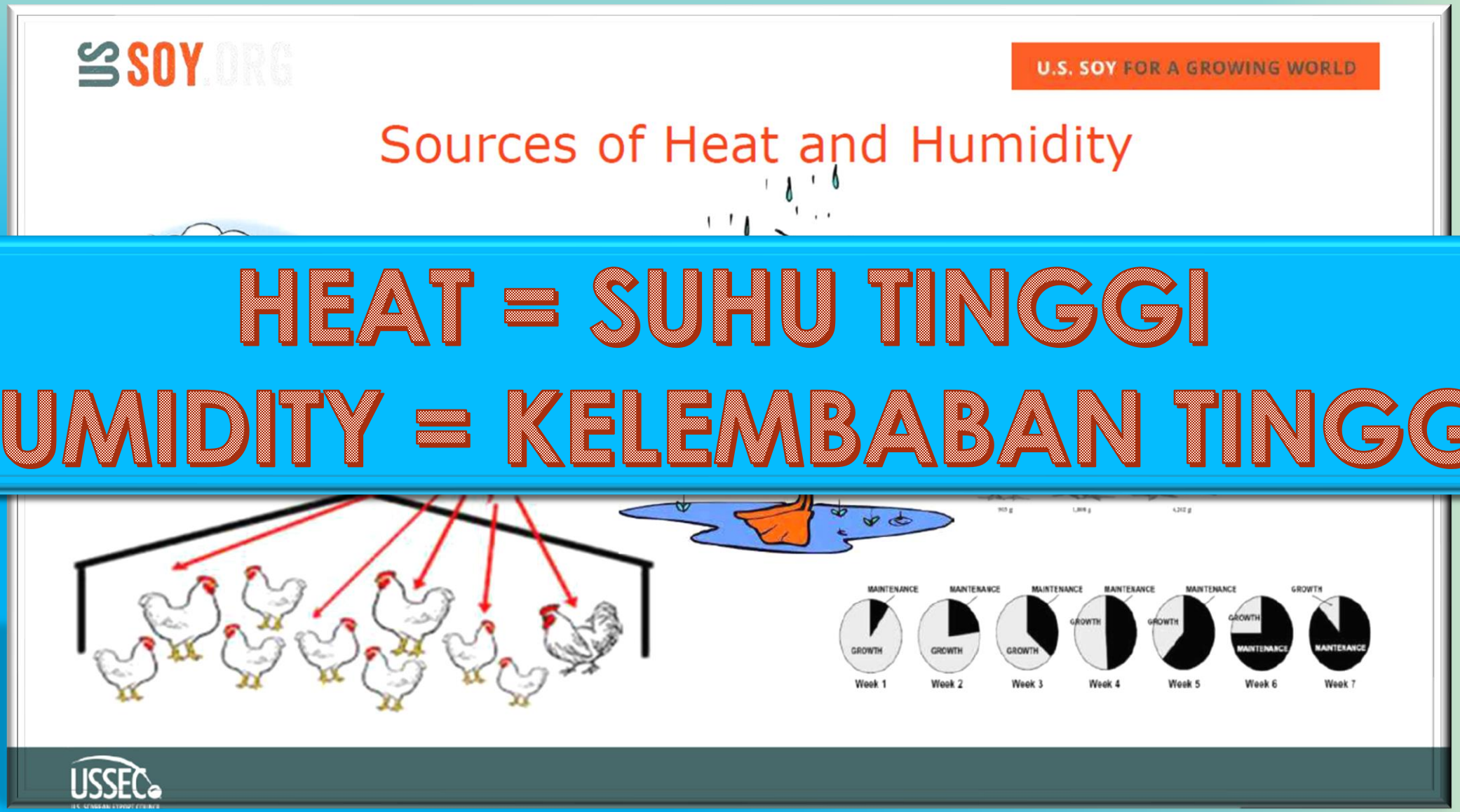
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HEAT STRESS

ADALAH SUATU KONDISI DIMANA TERJADI PERUBAHAN BAIK SECARA HORMONAL, PROSES METABOLISME DALAM TUBUHNYA SERTA SITEM PERTAHANAN TUBUH/ IMUNITASNYA SEBAGAI DAMPAK DARI SEMAKIN SUSAHNYA AYAM MEMBUANG SISA PANAS TUBUH KE LINGKUNGANNYA OLEH CEKAMAN SUHU DAN KELEMBABAN



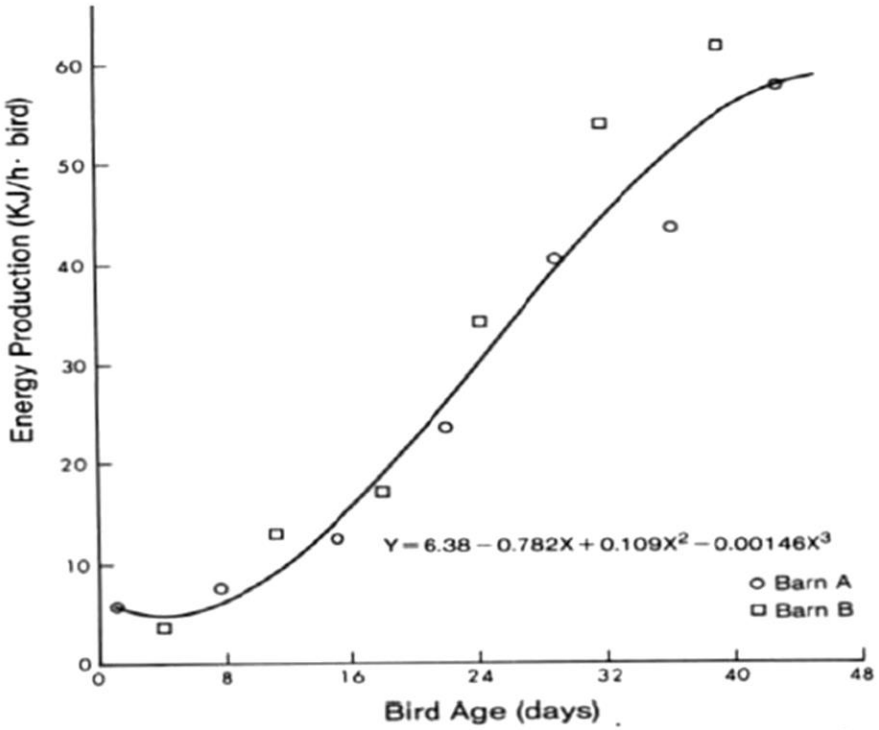
DAMPAK HEAT STRESS



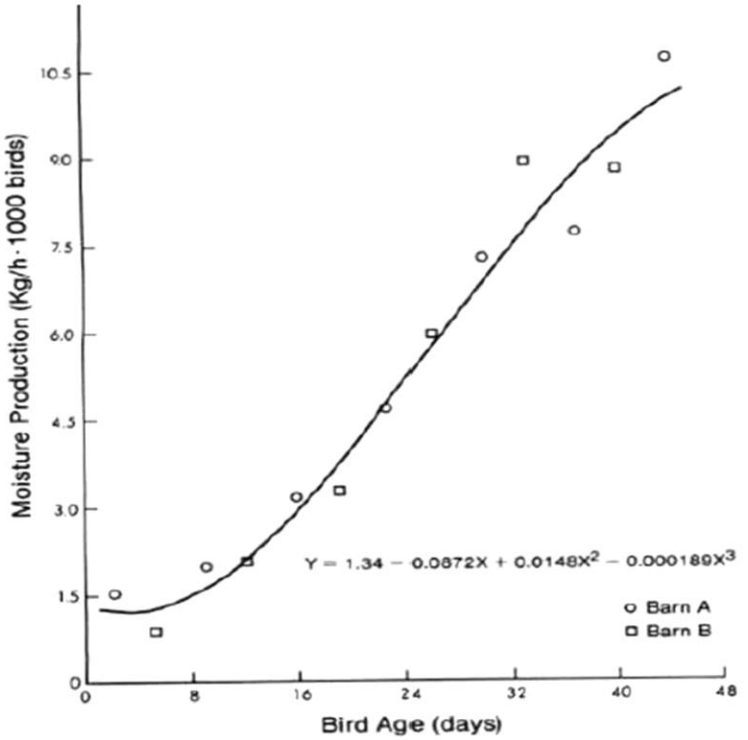
HEAT = SUHU TINGGI

HUMIDITY = KELEMBABAN TINGGI

Broiler Heat and Moisture Production During Life Cycle



3. Total heat production of broiler chickens in Barns A and B during complete production cycles.



Moisture production of broiler chickens in Barns A and B during complete production cycles.

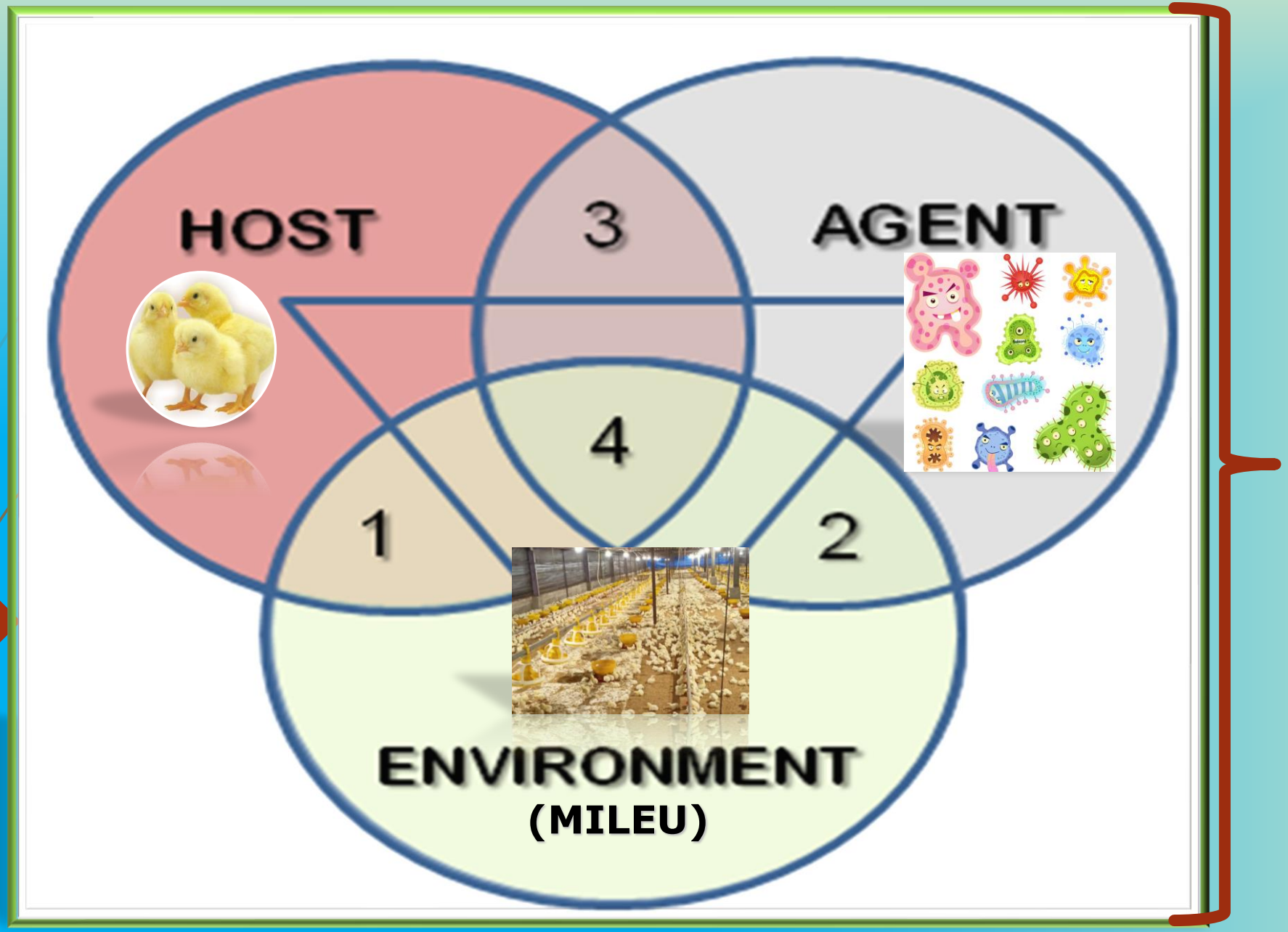
Feddes, J. J. R., et al., 1984. Broiler heatandmoisture production under commercial condition. Can. Agric. Eng. 26: 57-64.

INDEKS HEAT-STRESS

Indeks Heat Stress = Kelembaban + Suhu					
80 °F	145	150	155	160	165
85 °F	150	155	160	165	170
90 °F	155	160	165	170	175
95 °F	160	165	170	175	180
%RH	65	70	75	80	85

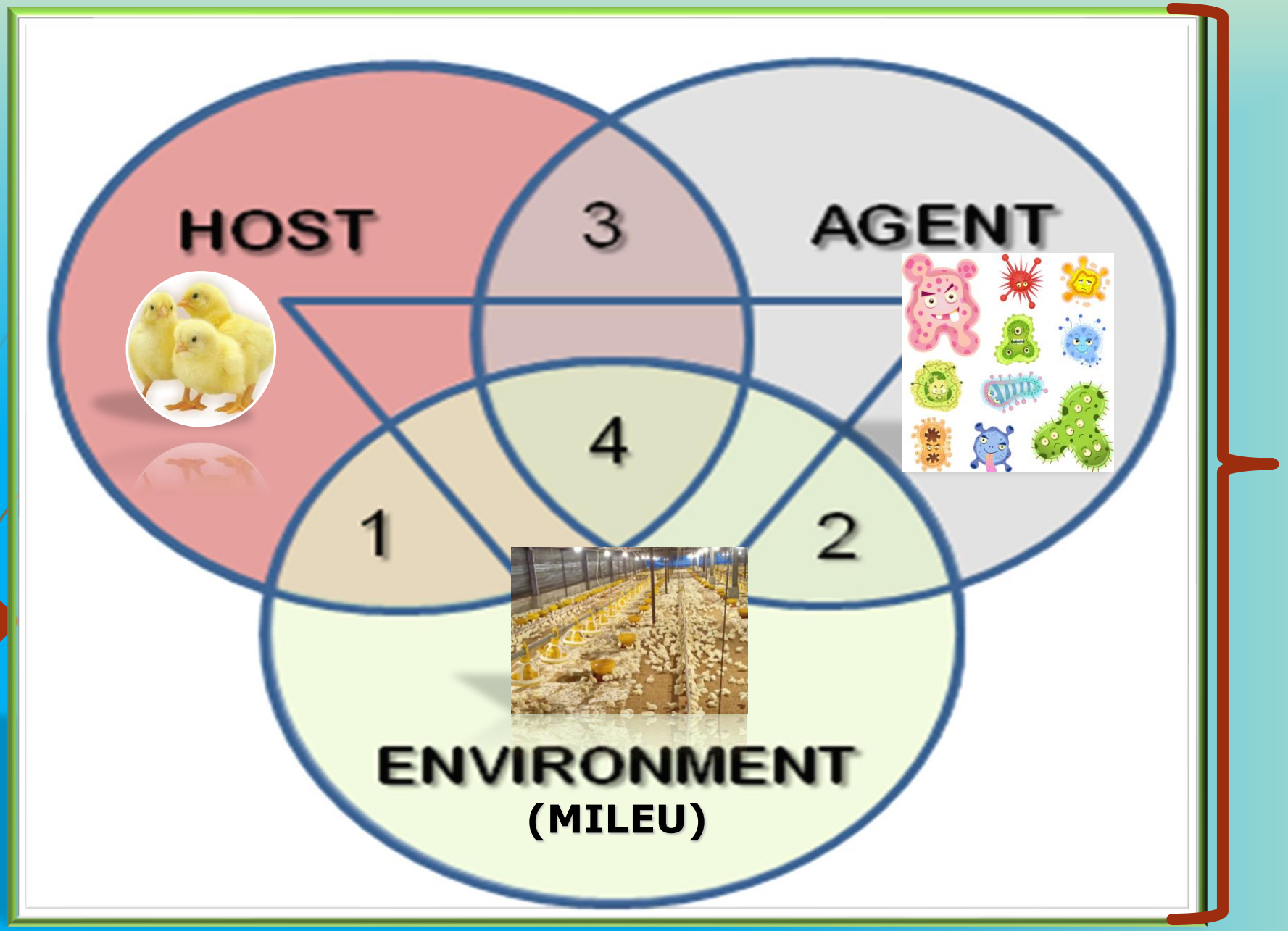
(Unandar, 2012)

DINAMIKA AYAM-BIBIT PENYAKIT-LINGKUNGAN



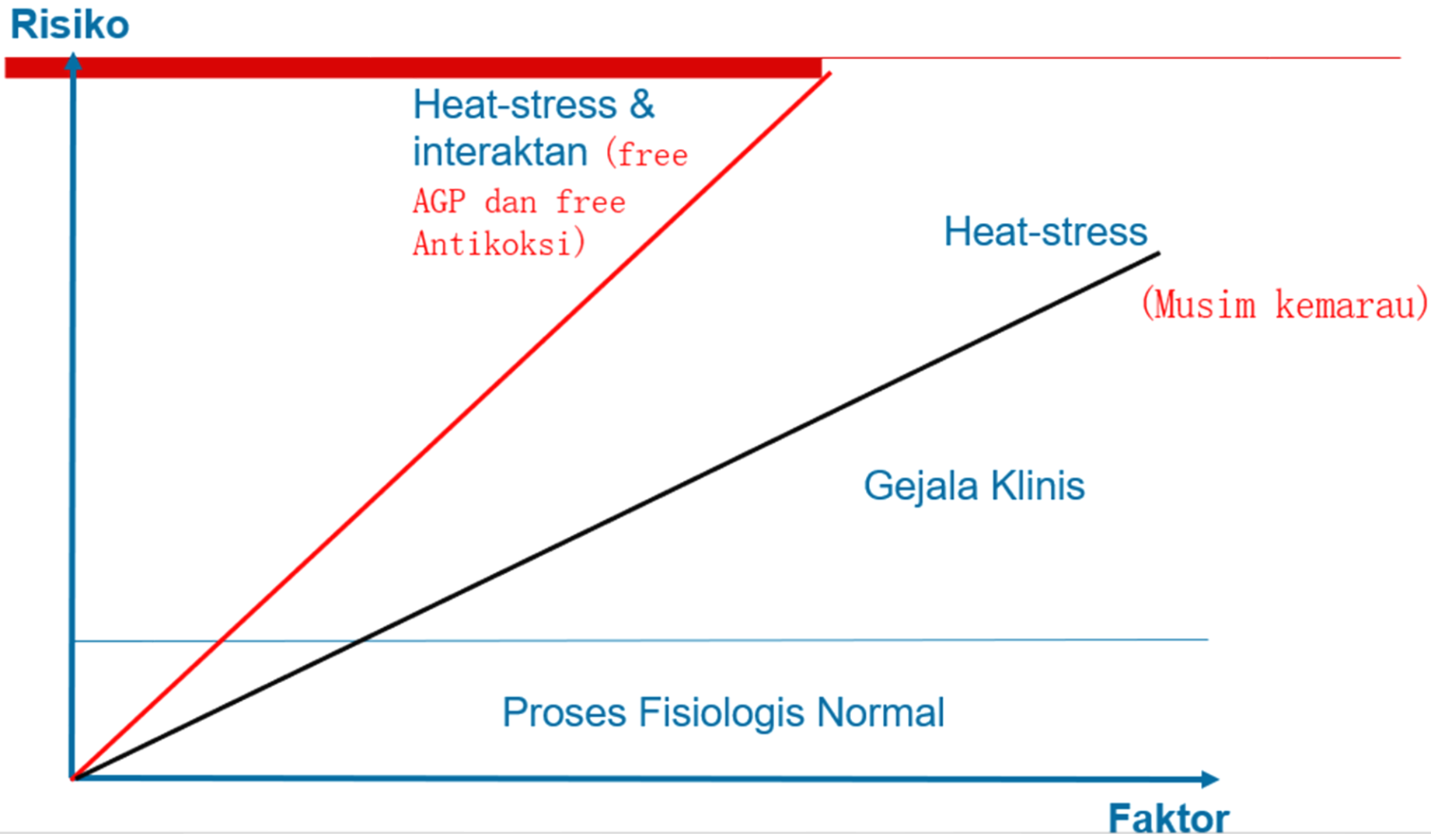
MUSIM : PERALIHAN - KEMARAU

DINAMIKA AYAM-BIBIT PENYAKIT-LINGKUNGAN



MUSIM : KEMARAU

Heat-stress & Interaktan



Chick Start | **First 7 Days** | **Gut Health** | **Stress**

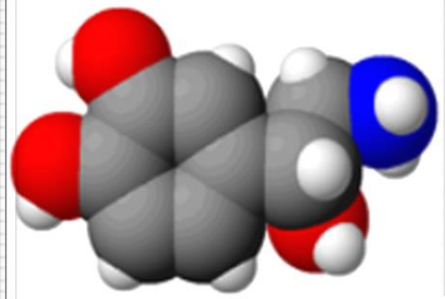


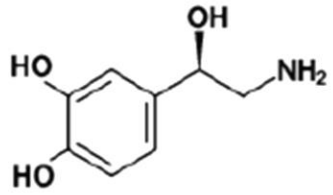
Environmental

Management — STRESS — Health

Nutritional

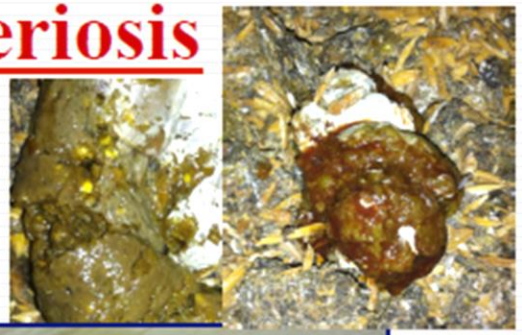






Noradrenaline

dysbacteriosis

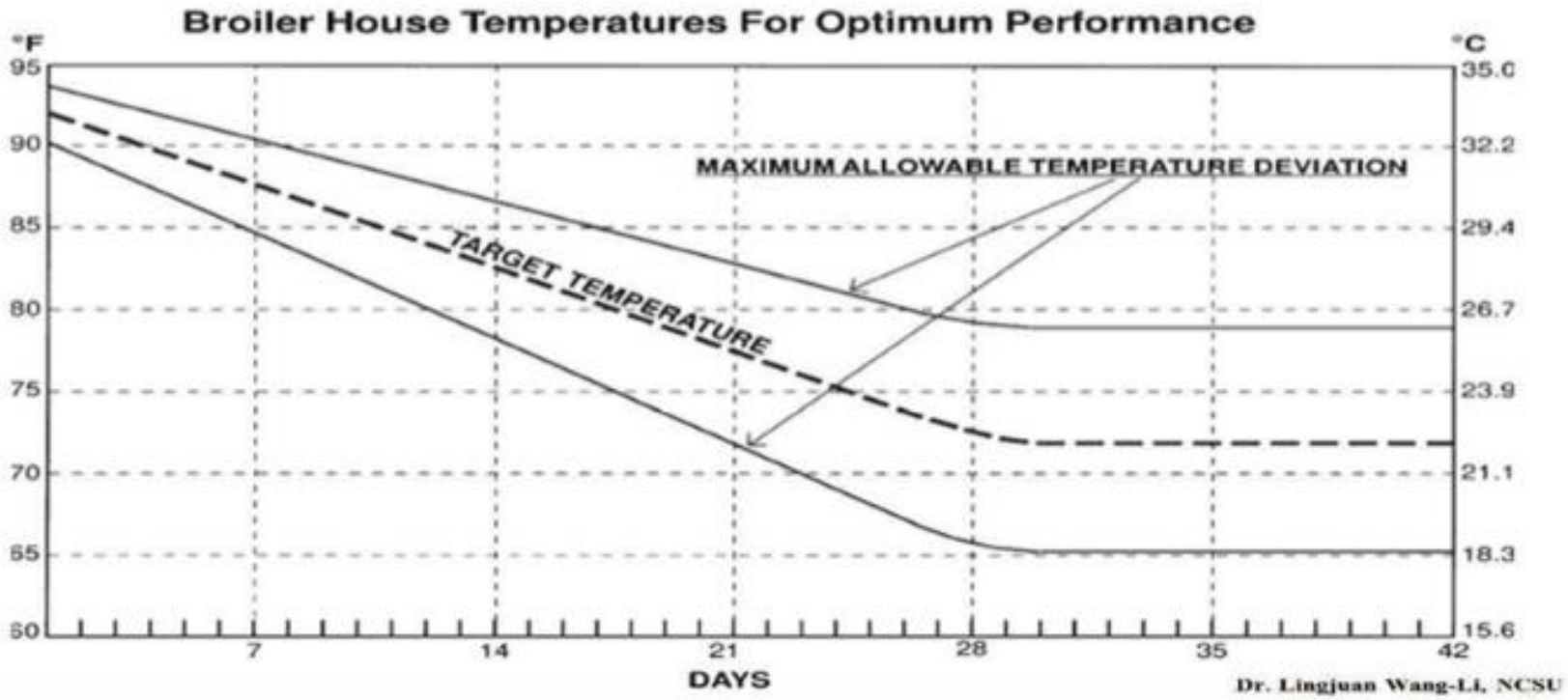




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U.S. SOY FOR A GROWING WORLD

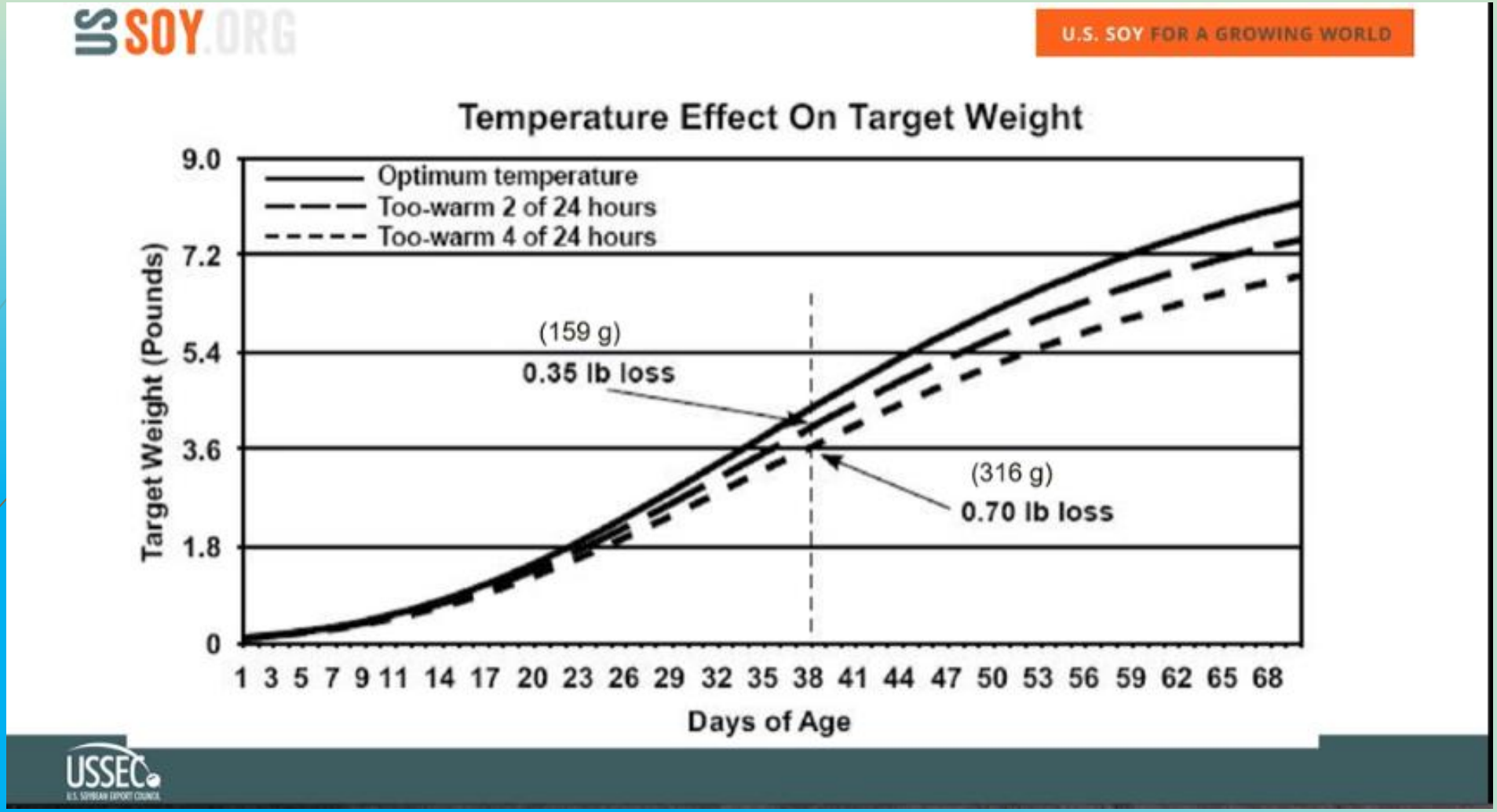
Broiler House Ventilation Basics



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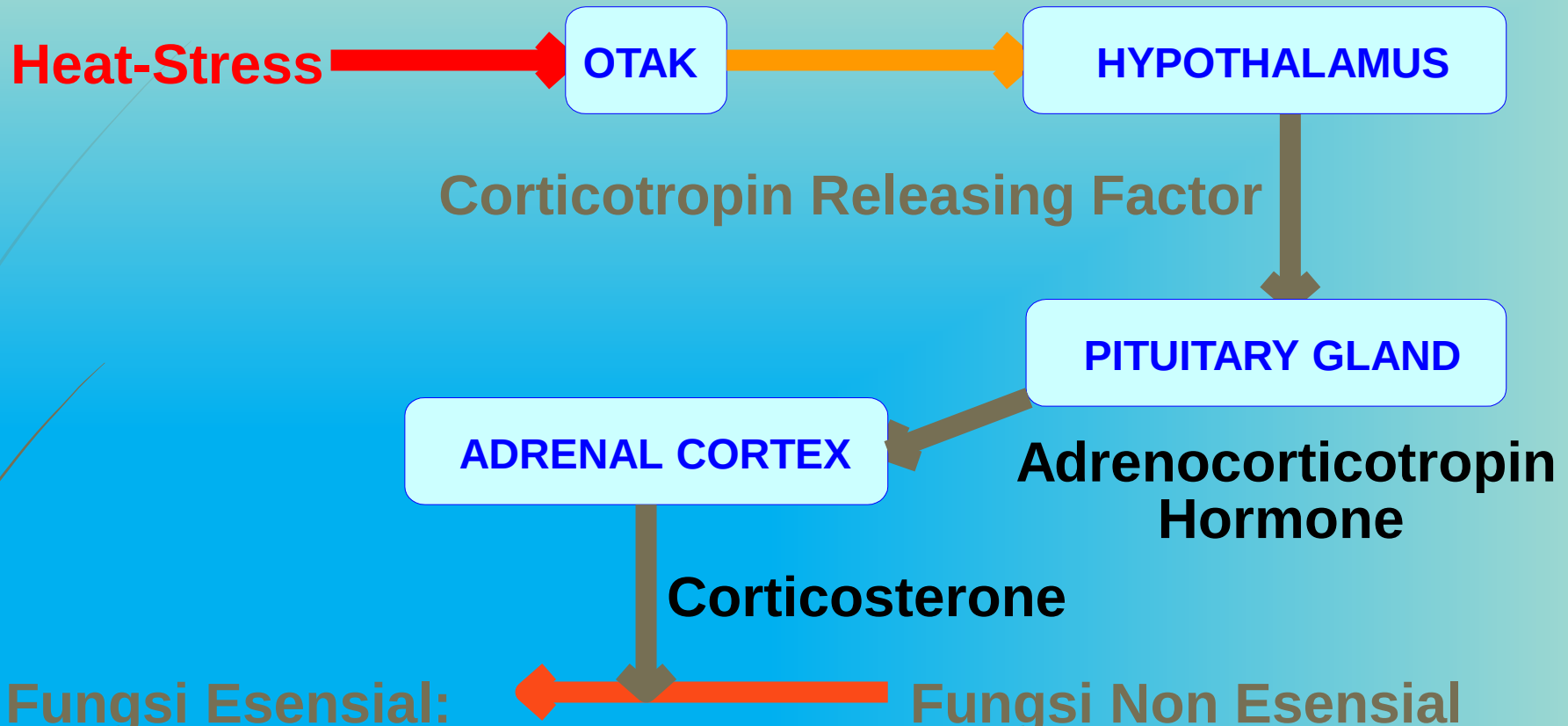
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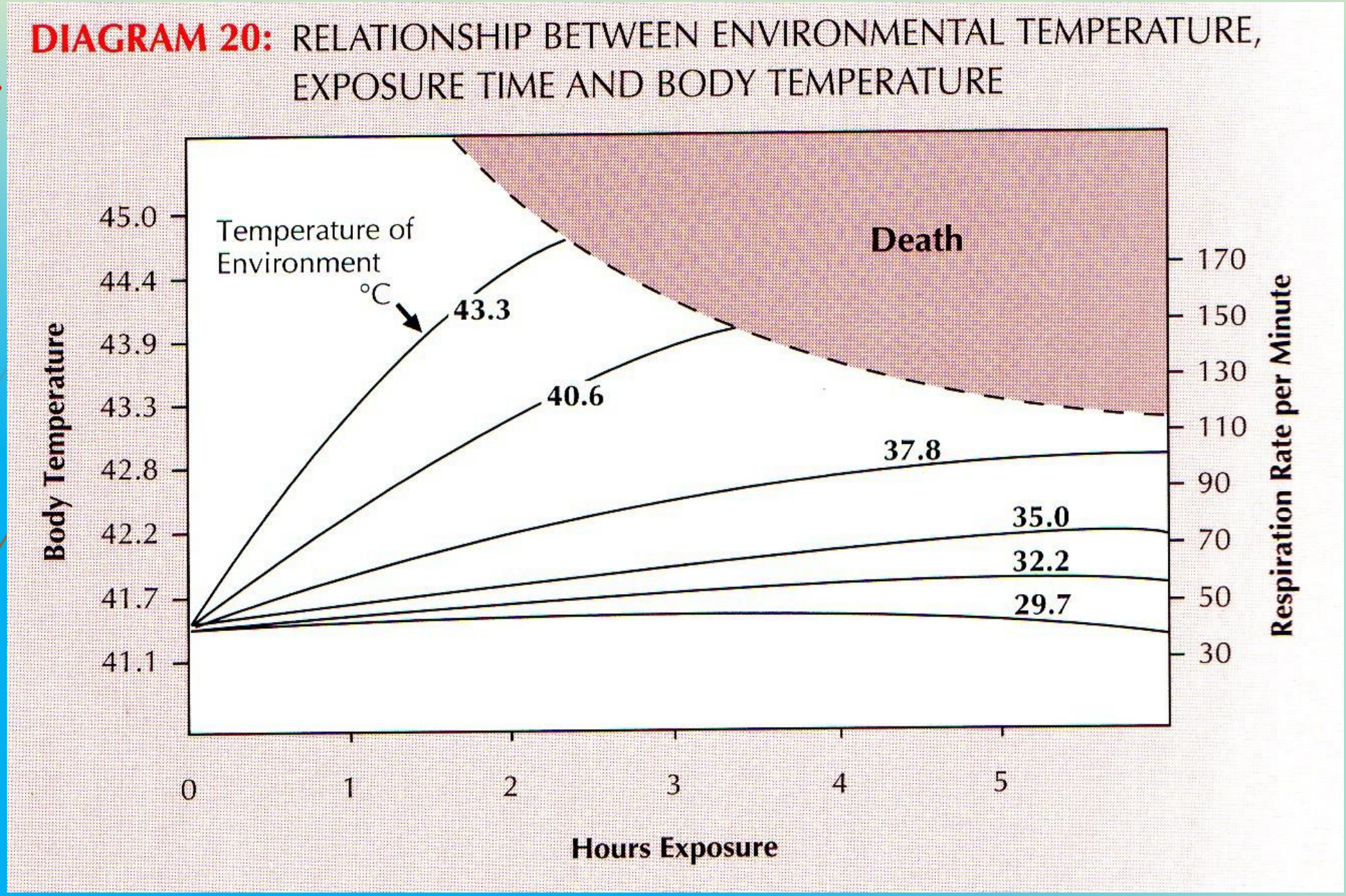
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Patogenesis Heat-stress

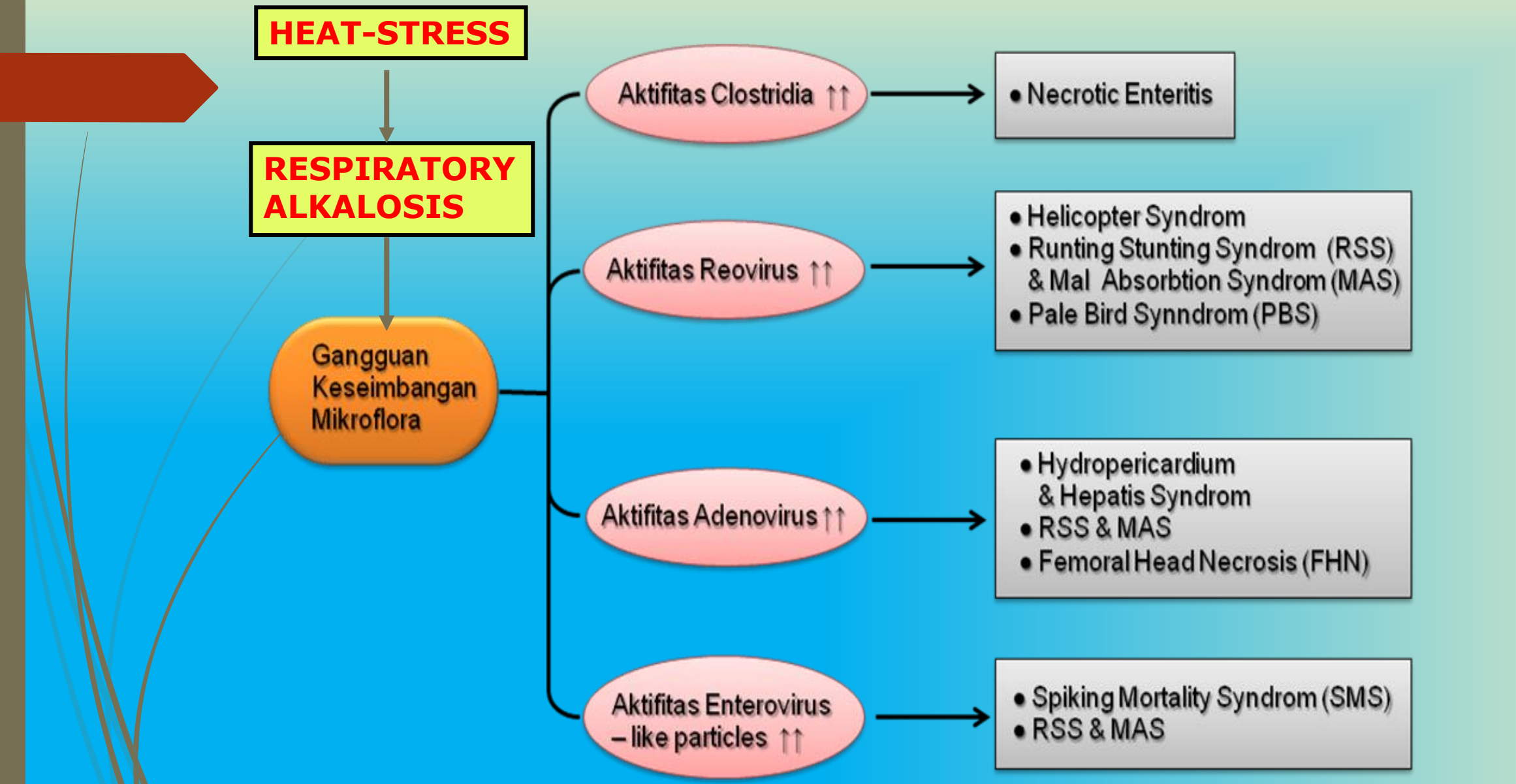


(Unandar, 2012)

DIAGRAM 20: RELATIONSHIP BETWEEN ENVIRONMENTAL TEMPERATURE, EXPOSURE TIME AND BODY TEMPERATURE

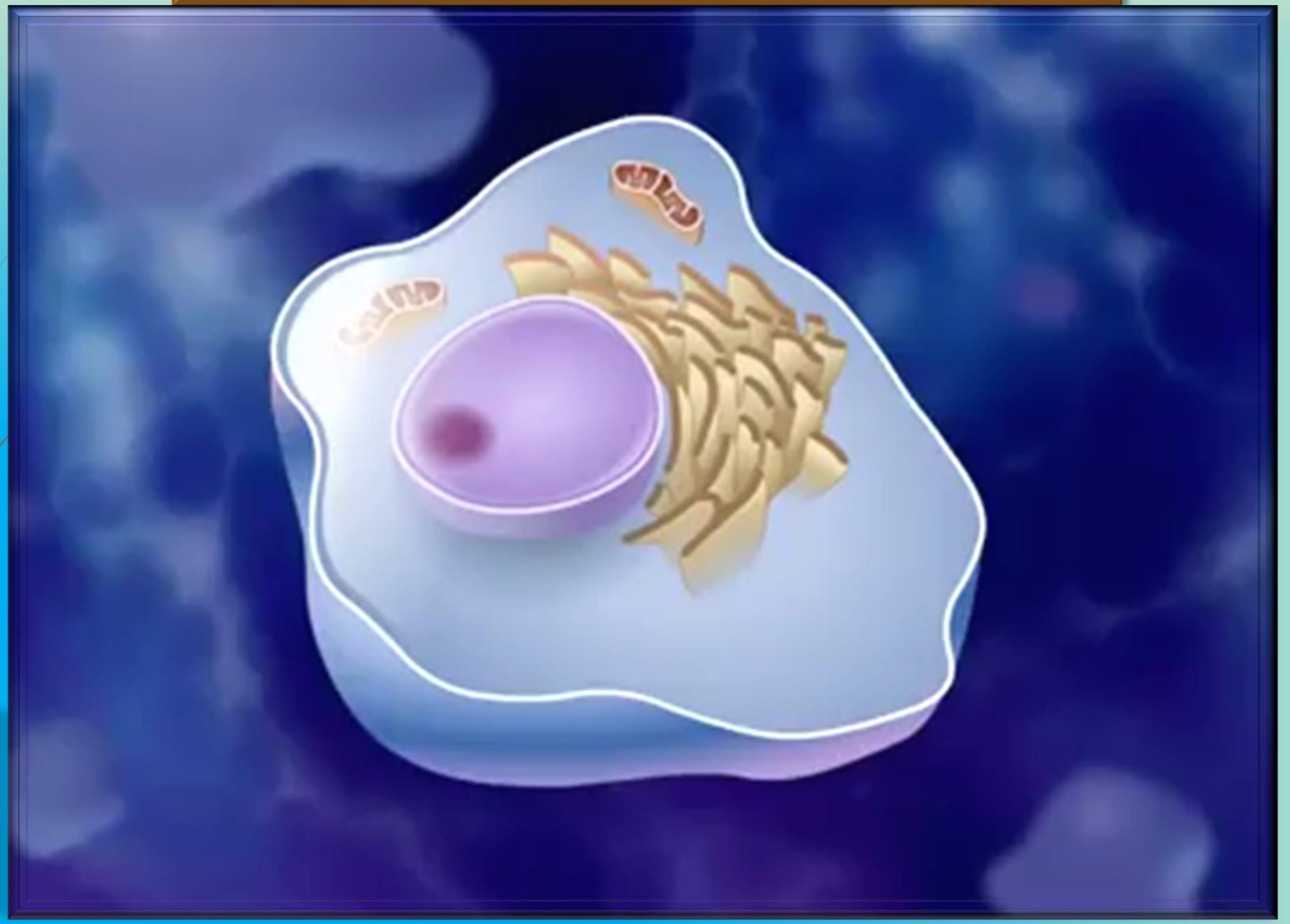


Source : ROSS Broiler Management Manual, Nov.1999



(Unandar, 2012)

NORMAL LEUCOCYTE ACTIVITY




LAZY LEUCOCYTE SYNDROME
IMMUNOSUPRESSION
RESPON TERHADAP AGEN KUMAN PENYAKIT
RESPON TERHADAP VAKSINASI
RESPON TERHADAP PENGGUNAAN ANTIBIOTIK

RESPON TERHADAP AGEN KUMAN PENYAKIT

- MORBIDITAS ATAU MORTALITAS KASUS YANG TINGGI
- ADANYA PENGULANGAN KASUS PENYAKIT DALAM 1 PERIODE ATAU ANTAR PERIODE PEMELIHARAAN
- KOMPLEKSITAS KASUS YANG TINGGI
- MUNCULNYA KASUS YANG TIDAK LAZIM

RESPON TERHADAP VAKSINASI

- TITER ANTIBODI YANG RENDAH
- VARIASI TITER ANTIBODI YANG TINGGI (UNIFORMITY RENDAH)
- REAKSI POST VAKSINAL YANG LEBIH HEBAT
- BOOSTER YANG LEBIH SERING
- MENGACAUKAN ***BASE LINE TITRE MONITORING***

RESPON TERHADAP PENGGUNAAN ANTIBIOTIK

- KEGAGALAN EFEKTIFITAS PENGGUNAAN ANTIBIOTIK
- PENGGUNAAN ANTIBIOTIK MENJADI SUBOPTIMAL (INFEKSI BISA TERJADI DENGAN DOSIS DAN KERAGAMAN MIKROORGANISME YANG RENDAH)
- PENGULANGAN /ROLLING ANTIBIOTIK MENJADI LEBIH PENDEK UNTUK MENGHINDARI RESISTENSI

Outline

Titik Kritis Monitoring Parameter Performa dan Upaya Teknis Penyesuaian Tatalaksana Pemeliharaan

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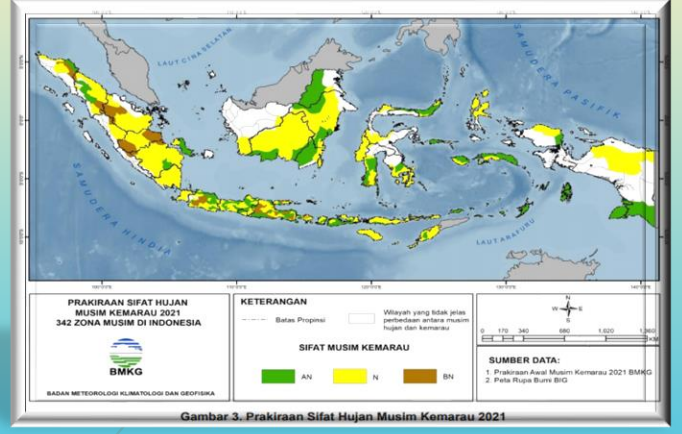
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TITIK KRITIS PEMELIHARAAN BROILER MODERN DI MUSIM **KEMARAU** :

- DI AREA DENGAN **SIFAT HUJAN DI ATAS NORMAL**
  (T : ↗, RH :↗)
- DI AREA DENGAN SIFAT HUJAN NORMAL
  (T : ↗, RH : ~)
- DI AREA DENGAN SIFAR HUJAN DI BAWAH NORMAL
  (T : ↗, RH : ↘)

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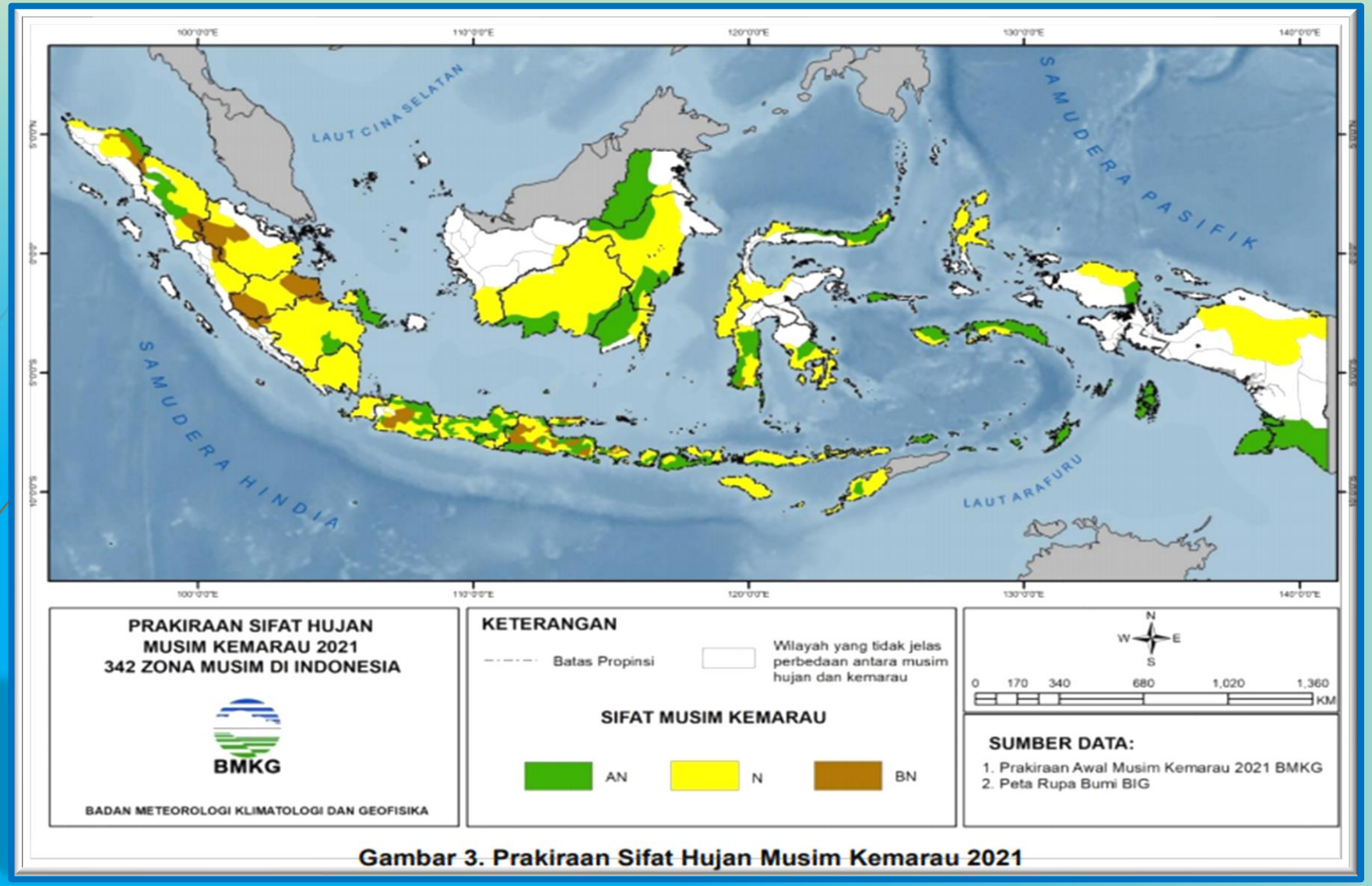
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Gambar 3. Prakiraan Sifat Hujan Musim Kemarau 2021

SIFAT HUJAN DI MUSIM KEMARAU

SIFAT HUJAN	SUHU	KELEMBABAN
DI ATAS NORMAL	↗	↗
NORMAL	↗	~
DI BAWAH NORMAL	↗	↘



Gambar 3. Prakiraan Sifat Hujan Musim Kemarau 2021

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Gambar 3. Prakiraan Sifat Hujan Musim Kemarau 2021

UPAYA TEKNIS PENYESUAIAN TATA LAKSANA PEMELIHARAAN AYAM

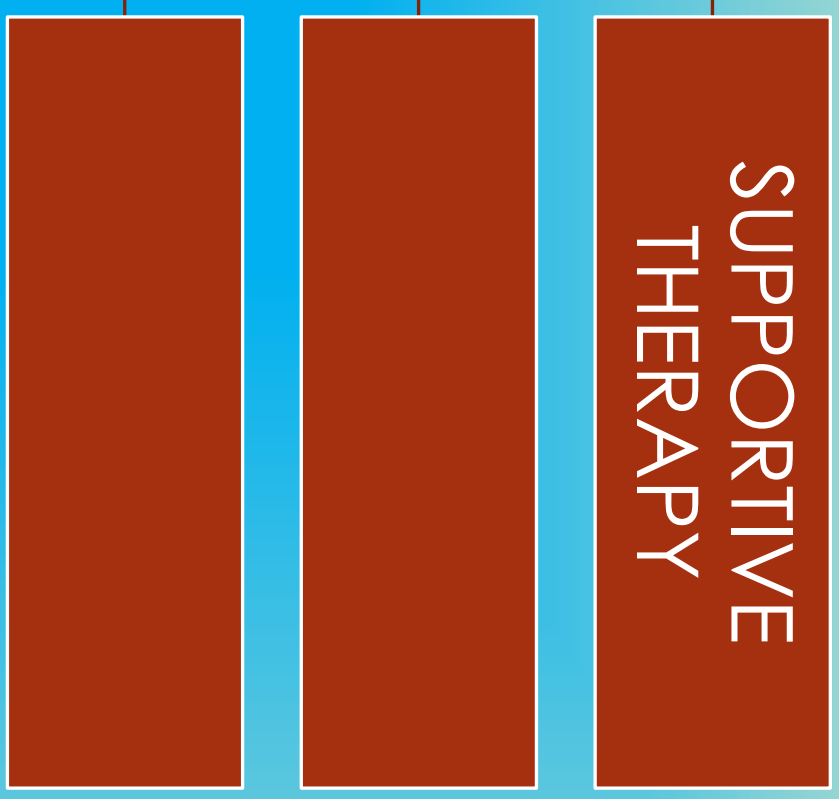
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UPAYA TEKNIS PENYESUAIAN TATA LAKSANA

- REVIEW VAKSINASI DAN BIOSECURITY
- TEKNIS TATALAKSANA
- SUPPORTIVE THERAPY

UPAYA TEKNIS PENYESUAIAN TATA LAKSANA

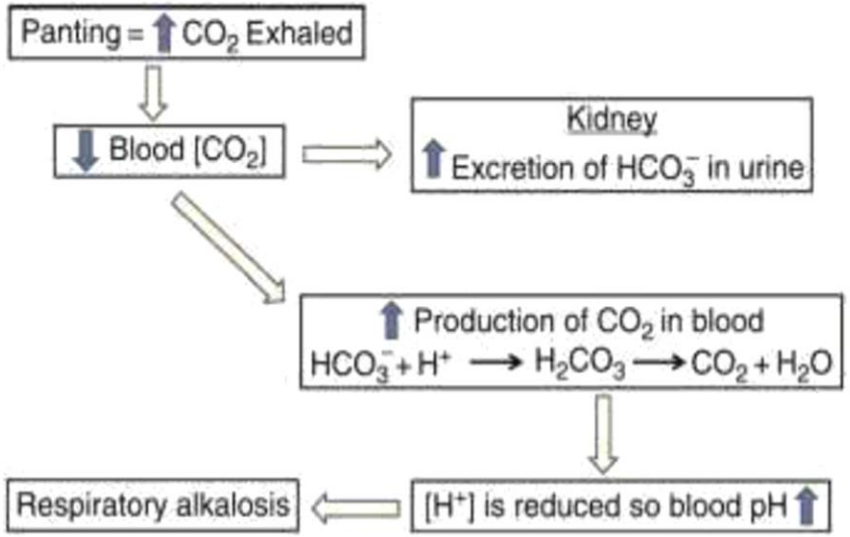


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Physiological Impact of Heat Stress

- Respiratory Alkalosis resulted from hyperventilation
  - Elevated blood pH with reduction of arterial CO_2
- Electrolyte imbalance
  - Due to increased electrolyte excretion, mainly K^+ and Na^+
- Affect egg shell quality in breeders and laying hens



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1. BERIKAN TAMBAHAN ELEKTROLIT (Na dan K) VIA AIR MINUM/PAKAN

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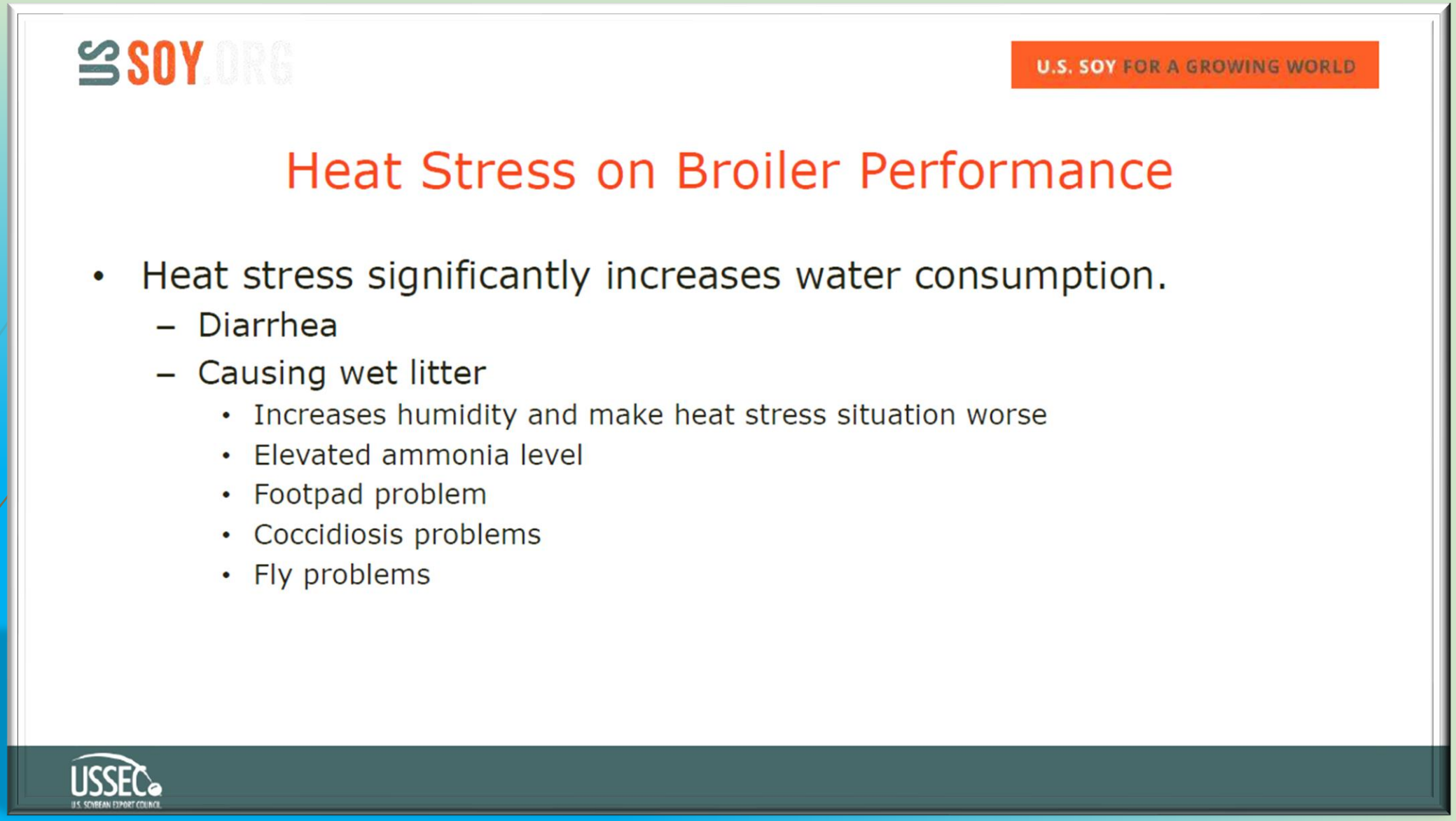
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Use of Vitamins

- Vitamin supplements can minimize the oxidative damage as a result of heat stress
- Vit. C and Vit. E have antioxidant properties
- Protect the cell membranes against the damage of reactive oxygen species (ROS)
- Beneficial for both growth performance and immune functions of broilers under heat stress

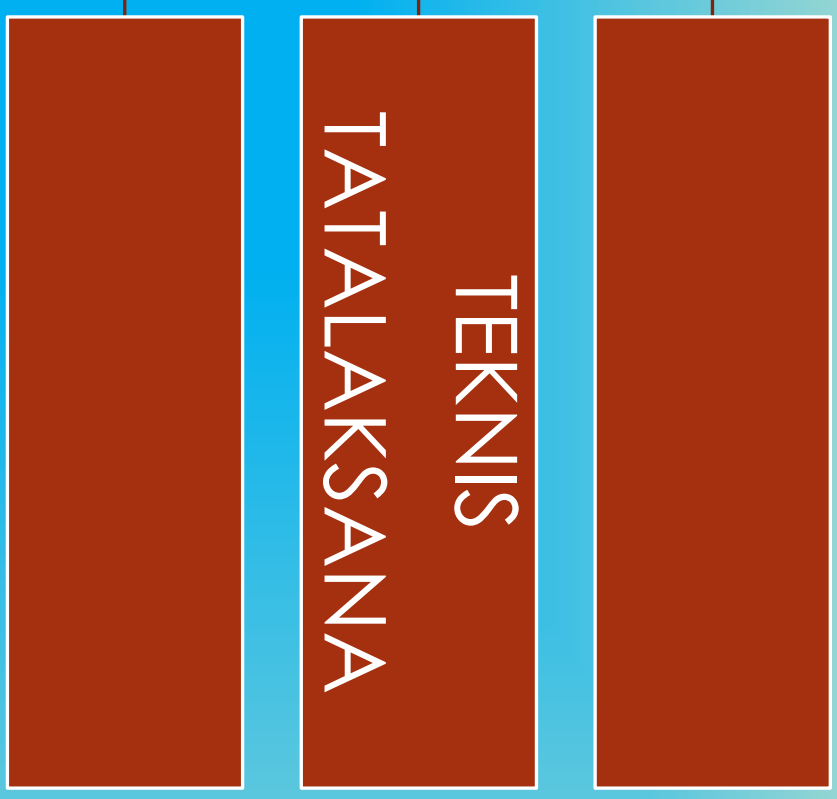
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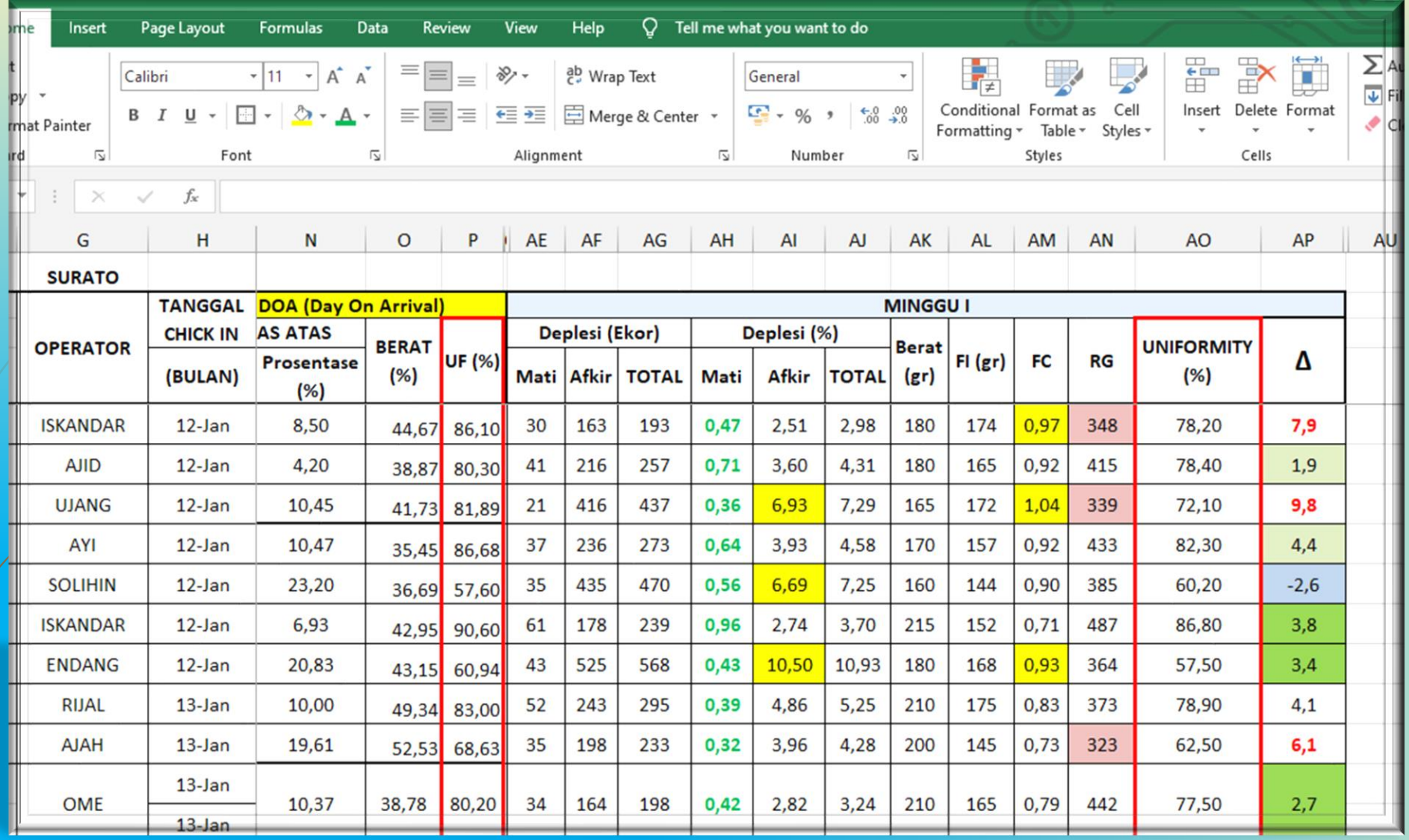
2. PEMBERIAN ANTI OKSIDAN VIA AIR MINUM/PAKAN (Vit. C/E/Se/Zn/Cu)



3. PENAMBAHAN ABSORBANT PADA FORMULA FEED
4. REVIEW ANTI KOKSI (AIR MINUM/PAKAN)

UPAYA TEKNIS PENYESUAIAN TATA LAKSANA





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Font Alignment Number Styles Cells

SURATO

OPERATOR	TANGGAL CHICK IN (BULAN)	DOA (Day On Arrival) AS ATAS Prosentase (%)	BERAT (%)	UF (%)	MINGGU I Deplesi (Ekor) Mati	Afkir	TOTAL	Deplesi (%) Mati	Afkir	TOTAL	Berat (gr)	FI (gr)	FC	RG	UNIFORMITY (%)	Δ
ISKANDAR	12-Jan	8,50	44,67	86,10	30	163	193	0,47	2,51	2,98	180	174	0,97	348	78,20	7,9
AJID	12-Jan	4,20	38,87	80,30	41	216	257	0,71	3,60	4,31	180	165	0,92	415	78,40	1,9
UJANG	12-Jan	10,45	41,73	81,89	21	416	437	0,36	6,93	7,29	165	172	1,04	339	72,10	9,8
AYI	12-Jan	10,47	35,45	86,68	37	236	273	0,64	3,93	4,58	170	157	0,92	433	82,30	4,4
SOLIHIN	12-Jan	23,20	36,69	57,60	35	435	470	0,56	6,69	7,25	160	144	0,90	385	60,20	-2,6
ISKANDAR	12-Jan	6,93	42,95	90,60	61	178	239	0,96	2,74	3,70	215	152	0,71	487	86,80	3,8
ENDANG	12-Jan	20,83	43,15	60,94	43	525	568	0,43	10,50	10,93	180	168	0,93	364	57,50	3,4
RIJAL	13-Jan	10,00	49,34	83,00	52	243	295	0,39	4,86	5,25	210	175	0,83	373	78,90	4,1
AJAH	13-Jan	19,61	52,53	68,63	35	198	233	0,32	3,96	4,28	200	145	0,73	323	62,50	6,1
OME	13-Jan	10,37	38,78	80,20	34	164	198	0,42	2,82	3,24	210	165	0,79	442	77,50	2,7
	13-Jan															

1. MONITOR KETERCAPAIAN PERFORMA MINGGU PERTAMA, LAKUKAN PENYESUAIAN PADA FASE BERIKUTNYA (YANG BERORIENTASI KE KENYAMANAN AYAM)

Dietary protein level

- Crude Protein (CP):

  Although protein has a high heat increment, **decreasing dietary protein level would enhance the harmful effect of high temperature**. The lower level of dietary CP results in poor FE and BW gain (Alleman and Leclercq, 1997).

  Compared to the isoenergetic high protein diet, chicken fed with **low-protein diet** tend to eat more to meet their protein requirement, resulting in **high heat production** and **more fat deposition** (Buyse et al, 1992).

2. PROSES PERGANTIAN DARI PAKAN PRESTARTER KE STARTER ATAU DARI STARTER KE FINISHER HARUS BENAR-BENAR SMOOTH MASA TRANSISINYA

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Management and Feeding Strategies

- Feed restriction 3 hours before and after the peak of heat in the day

- Early heat acclimation
  - Exposing young birds to high temperatures can conditioning them to survive high temperature in later age
  - Raising temperature to 37℃ for a few hours each day between 5 – 7 days of age

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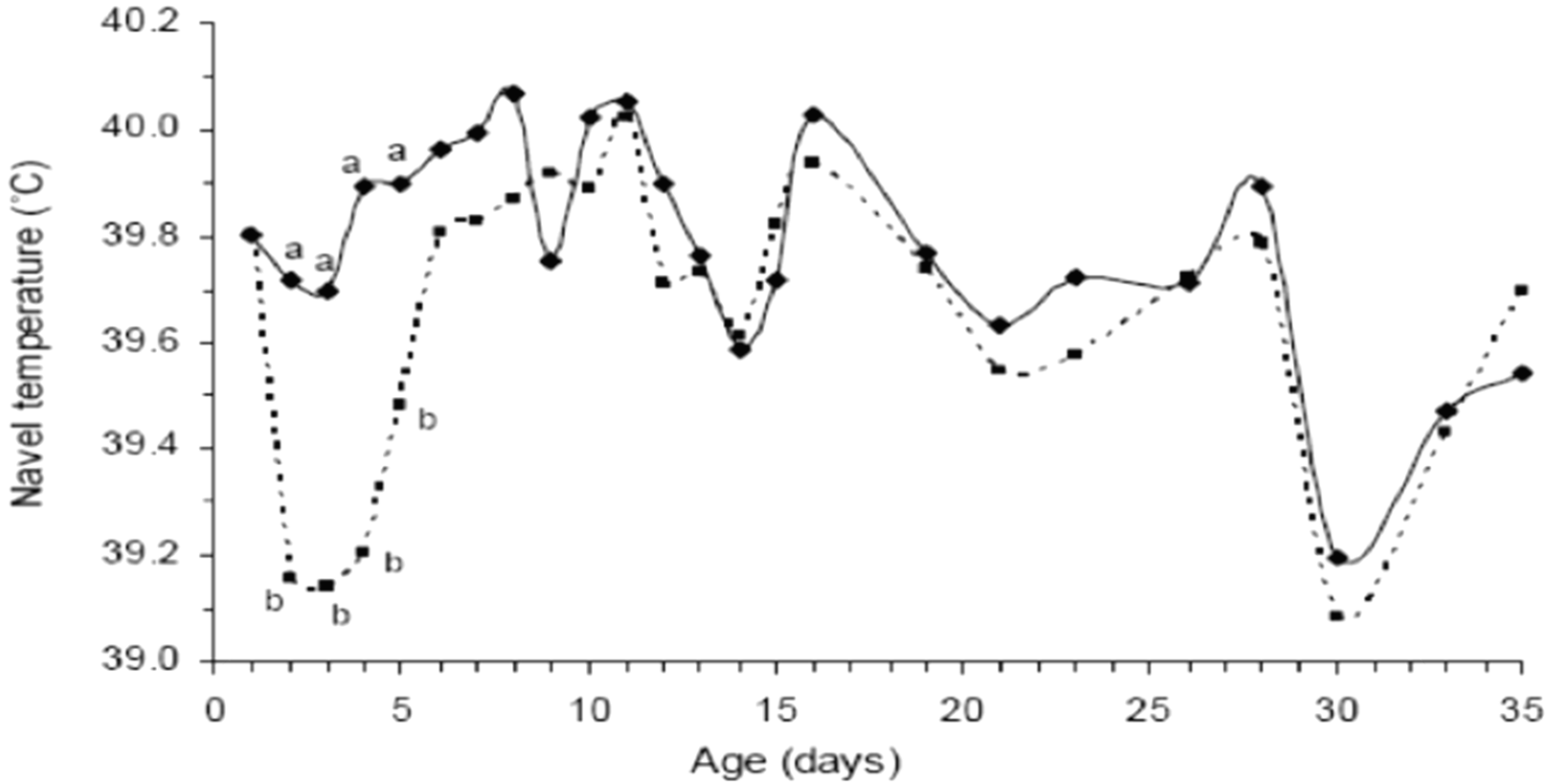
3. PEMBATASAN PAKAN 3 JAM SEBELUM DAN SETELAH PUNCAK PANAS

4. PENYESUAIAN SUHU DI AWAL PEMELIHARAAN

HUBUNGAN ANTARA

SUHU BROODING & SUHU TUBUH

a=brooding temp of 34 C b=brooding temp of 28 C



Ref.: Baarendse et al. (2006)

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Heat Stress on Broiler Performance

- Heat stress significantly increases water consumption.
  - Diarrhea
  - Causing wet litter
    - Increases humidity and make heat stress situation worse
    - Elevated ammonia level
    - Footpad problem
    - Coccidiosis problems
    - Fly problems

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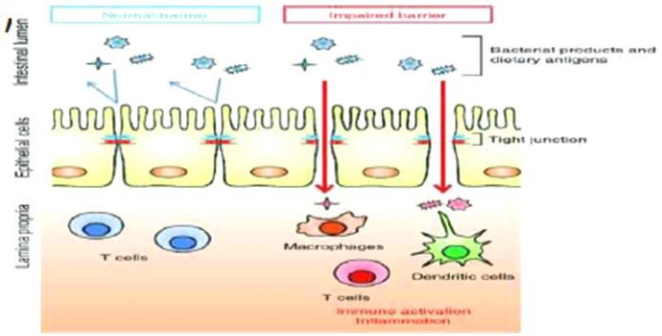
5. MONITORING LEBIH INTENS KUALITAS SEKAM
6. SESUAIKAN PENGHITUNGAN MINIMUM VENTILASI

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Heat Stress on Gut Health

- Intestinal integrity is weakened because of
  - Diverted more blood flow to skin to dissipate the excess heat
  - Not enough energy to produce the proteins that form the tight junctions between the enterocytes
  - Lining of gut became more permeable,
    - Weakened the gut barrier function,
    - Making infections more likely



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7. MONITORING DAYA TOPANG KANDANG
8. MONITORING ADG AYAM LEBIH DETAIL

9. MODIFIKASI TATA BANGUNAN DAN SARANA / PRASARANA KANDANG

- OPEN HOUSE : KIPAS, MONITOR KANDANG, PLAFON, MISTING (SPRINKLE), WARING, PARANET, SEKATAN UNTUK MEMINIMALKAN KEPADATAN SEMU)
- TUNEL : TIRAI LETTER V, COOLING NET, DEFLEKTOR, MISTING (SPRINGKLE), ADDITIONAL FAN
- CLOSED HOUSE : TIRAI LETTER V, DEFLEKTOR

UPAYA TEKNIS PENYESUAIAN TATA LAKSANA

- REVIEW VAKSINASI DAN BIOSECURITY

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Heat Stress Impairs Immune Responses

- Modulation of the immune response by the central nervous system (CNS) is mediated by a complex network that operates bi-directionally between the nervous, endocrine and immune systems
- Reduced weight of immune organs (thymus, spleen, bursa, liver)
  - Lower levels of circulating antibodies
  - Lower specific IgM and IgG levels
  - Lower immune response

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1. MONITOR REAKSI PASKA VAKSIN/ANTIBODI PASKA VAKSIN
2. PENERAPAN ESENSI BIOSECURITY 3 ZONA DAN DISIPLIN DALAM MENJALANKAN KONSEPNYA
3. PEMBERIAN IMONUMODULATOR

TAKE HOME MESSAGE

- UPAYA DETEKSI DINI TERHADAP SEMUA PERUBAHAN YANG TERJADI HARUS DILAKUKAN LEBIH RINCI DAN DETAIL
- PENYESUAIAN TATA LAKSANA MANAJEMEN HARUS DILAKUKAN SECEPATNYA SAAT MENJUMPAI ADA PARAMETER YANG TRENDNYA MENGALAMI PENURUNAN
- ASUPAN TAMBAHAN YANG YANG HARUS DIBERIKAN DI MASING-MASING KANDANG (PER AREA) HARUS DI SESUAIKAN DENGAN TANTANGAN MASING-MASING
- PELAKSANAAN BIOSEKURITY HARUS DILAKUKAN LEBIH KETAT, TERMONITOR DAN TERUKUR

TRIGROUP

TERIMA KASIH





eko, DVM (private commercial broiler farm consultant)