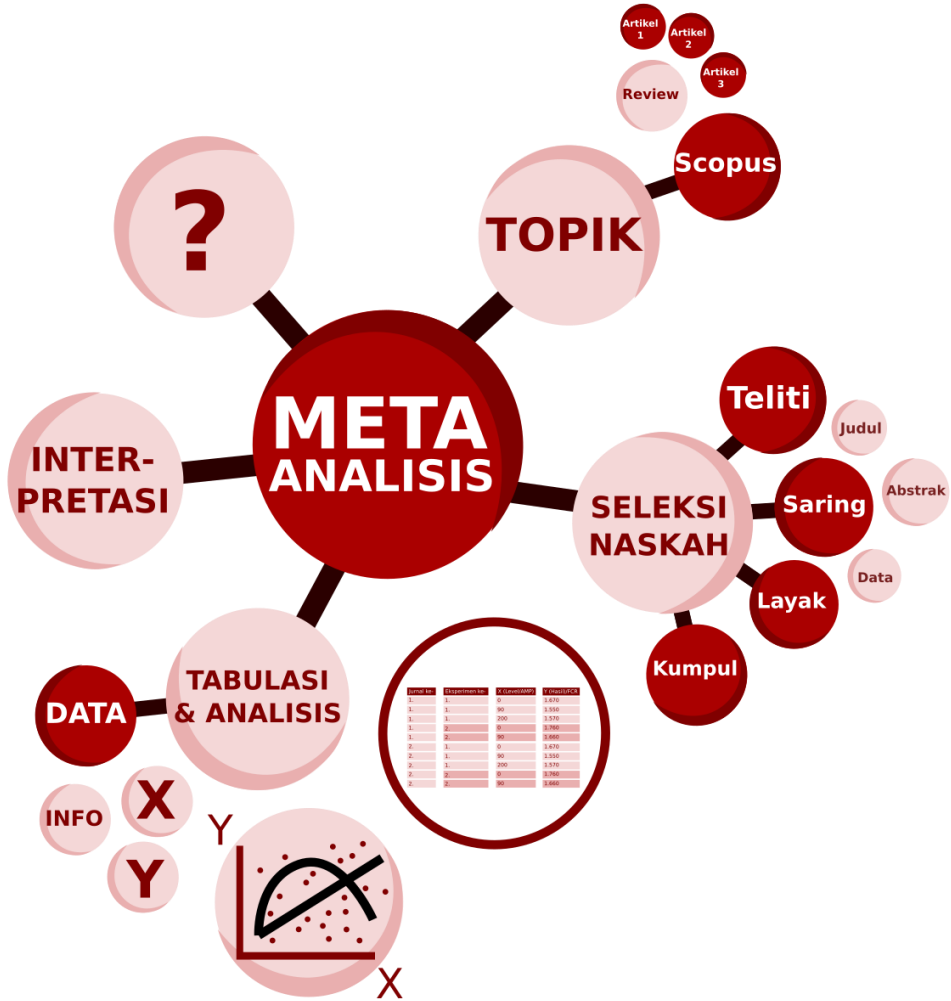
Strategi pemilihan topik riset meta-analisis, pencarian dan seleksi sumber data dari KTI, serta penyusunan data

Pusat Riset Peternakan

Organisasi Riset Pertanian dan Pangan

Badan Riset dan Inovasi Nasional



Pengertian meta-analisis

Meta-analisis adalah **metodologi statistik** untuk **mensintesis** hasil penelitian di berbagai **studi independent** (Koricheva *et al*. 2013).

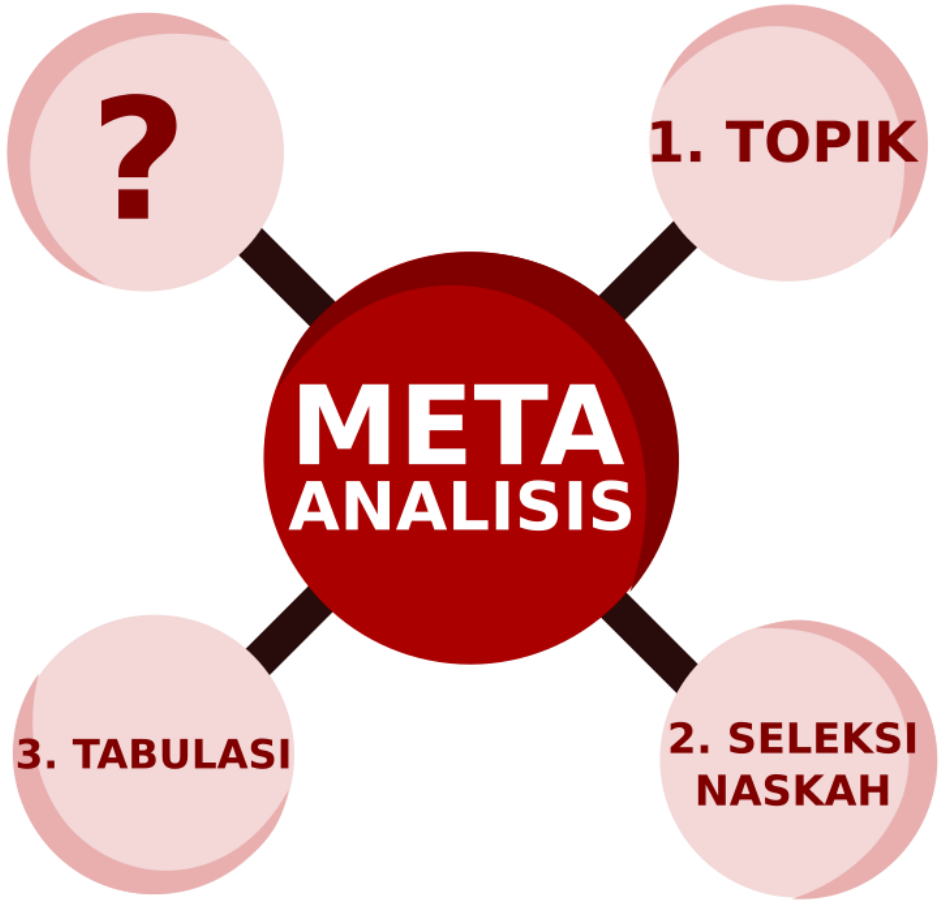
- Karya tulis ilmiah / **KTI**
- **Data penelitian** yang belum dipublikasikan

- **Pengetahuan**
- **Gambaran umum** dari fenomena

Menentukan topik dan menghimpun data

Yang perlu dicermati:

1. Menentukan **topik**
2. Mengumpulkan dan **menyeleksi** naskah/jurnal yang dirujuk
3. Data dari naskah/jurnal terpilih **ditabulasi**



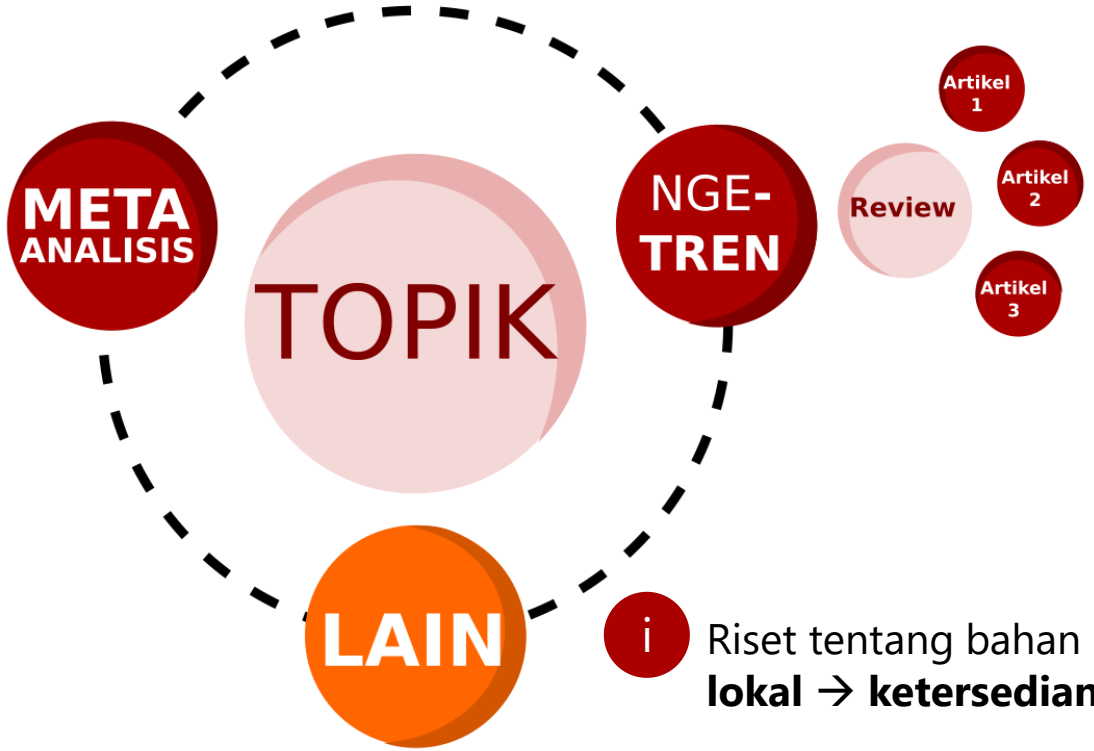
1. Membuat topik meta-analisis (Yanza 2020)

i **Dependen (Y)**: Dosis aditif (mg/Kg as fed) dan level pemberian pakan (% as fed)

ii **Subjek**: Ruminansia (kambing dan domba) dan monogastrik (ayam pedaging/broiler dan babi)

iii **Independen (X)**: Parameter performa (bobot badan (bb, g), pertambahan bobot badan harian (pbbh, g/hari), konsumsi pakan harian (kph, g/hari), dan konversi pakan (fcr))

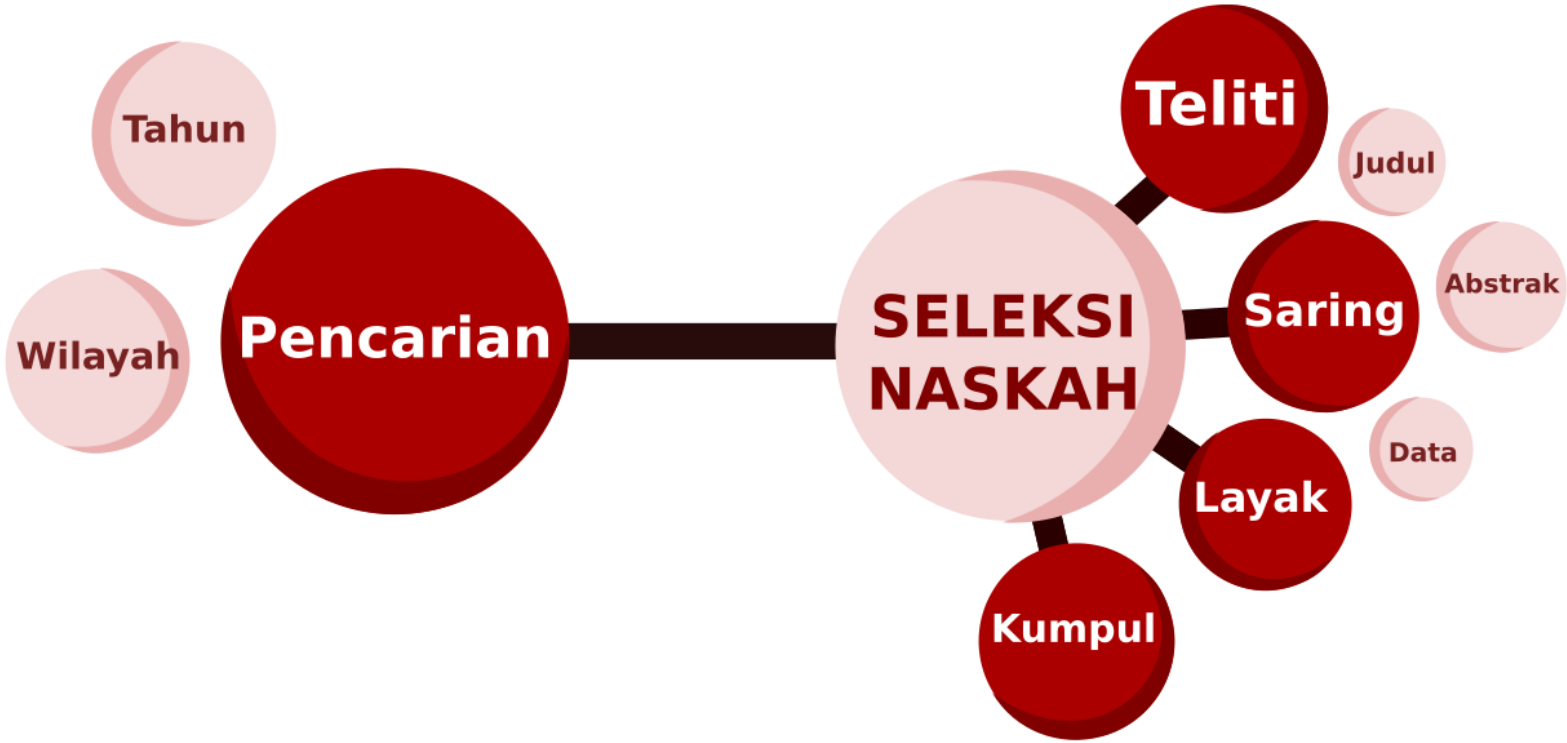
1. Sumber inspirasi topik



i Riset tentang bahan baku **lokal → ketersedian KTI**

ii Topik unik lainnya

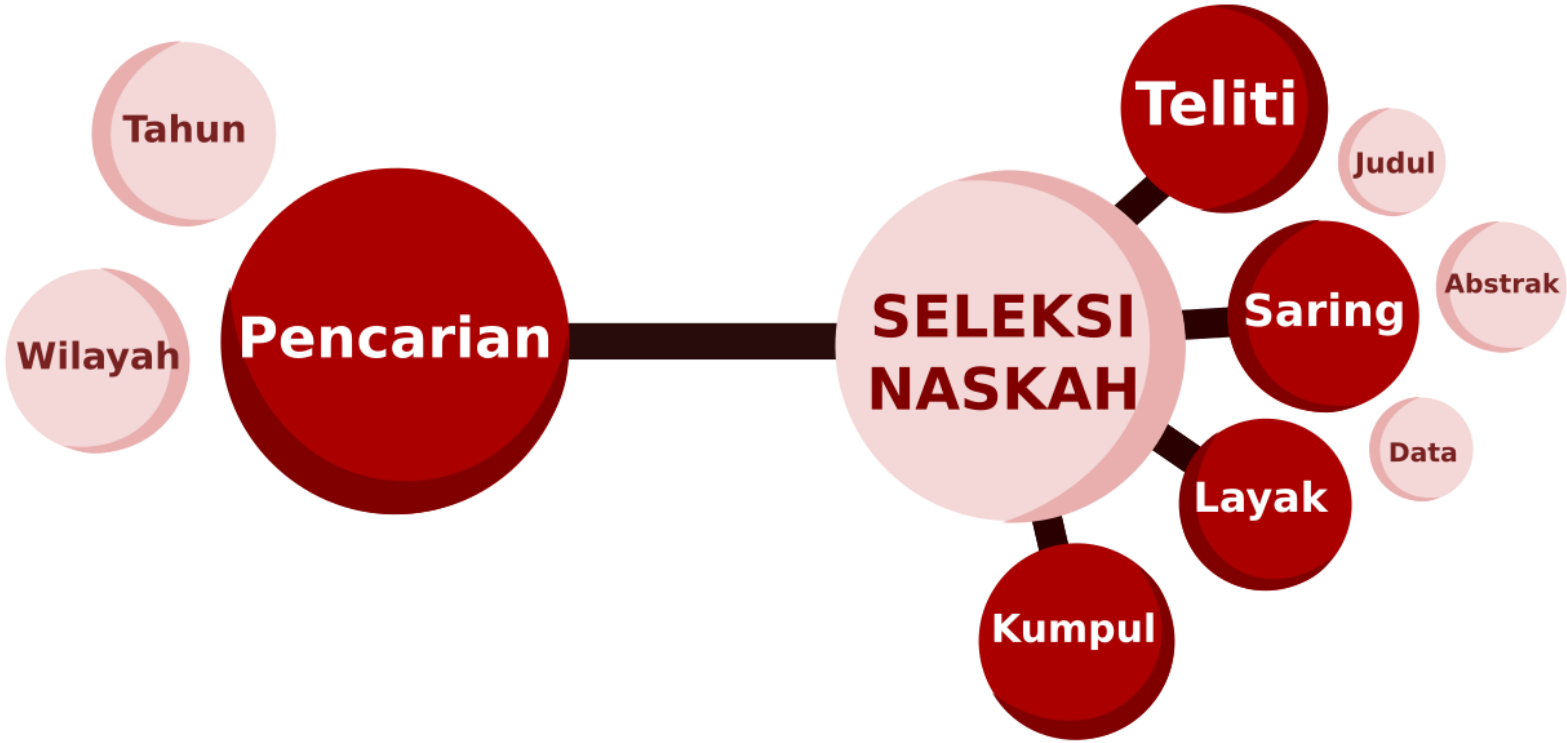
2. Pencarian dan seleksi sumber KTI



i **Sumber**: Basis data **scopus** → google **scholar** dan **science direct**

ii **Seleksi**: **satuan** level/dosis tertera, **ternak** (ayam pedaging/broiler), dan parameter performa

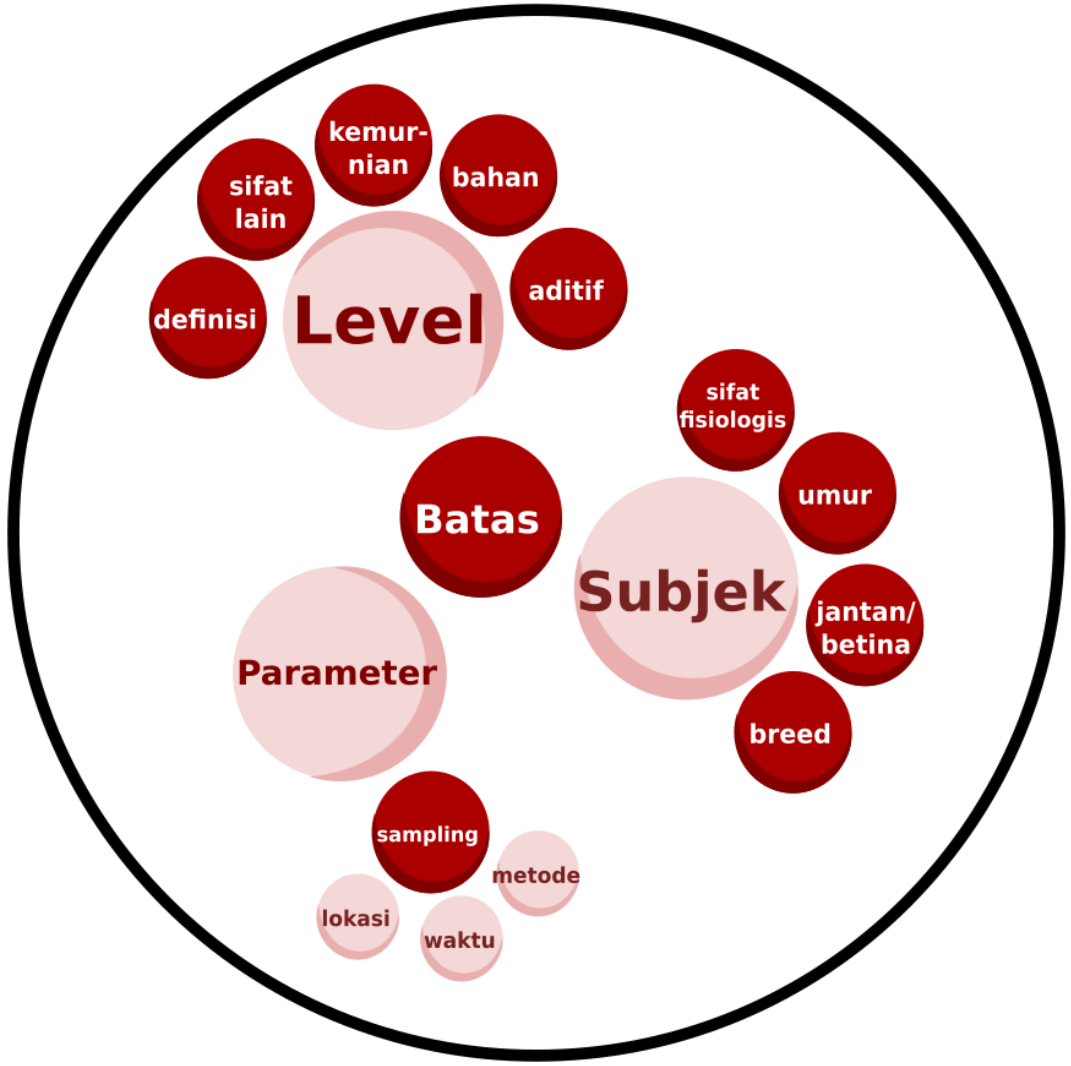
2. Pembatasan sumber KTI



i **Sumber**: Basis data **scopus** → google **scholar** dan **science direct**

ii **Seleksi**: **satuan** level/dosis tertera, **ternak** (ayam pedaging/broiler), dan parameter performa

2. Kriteria seleksi

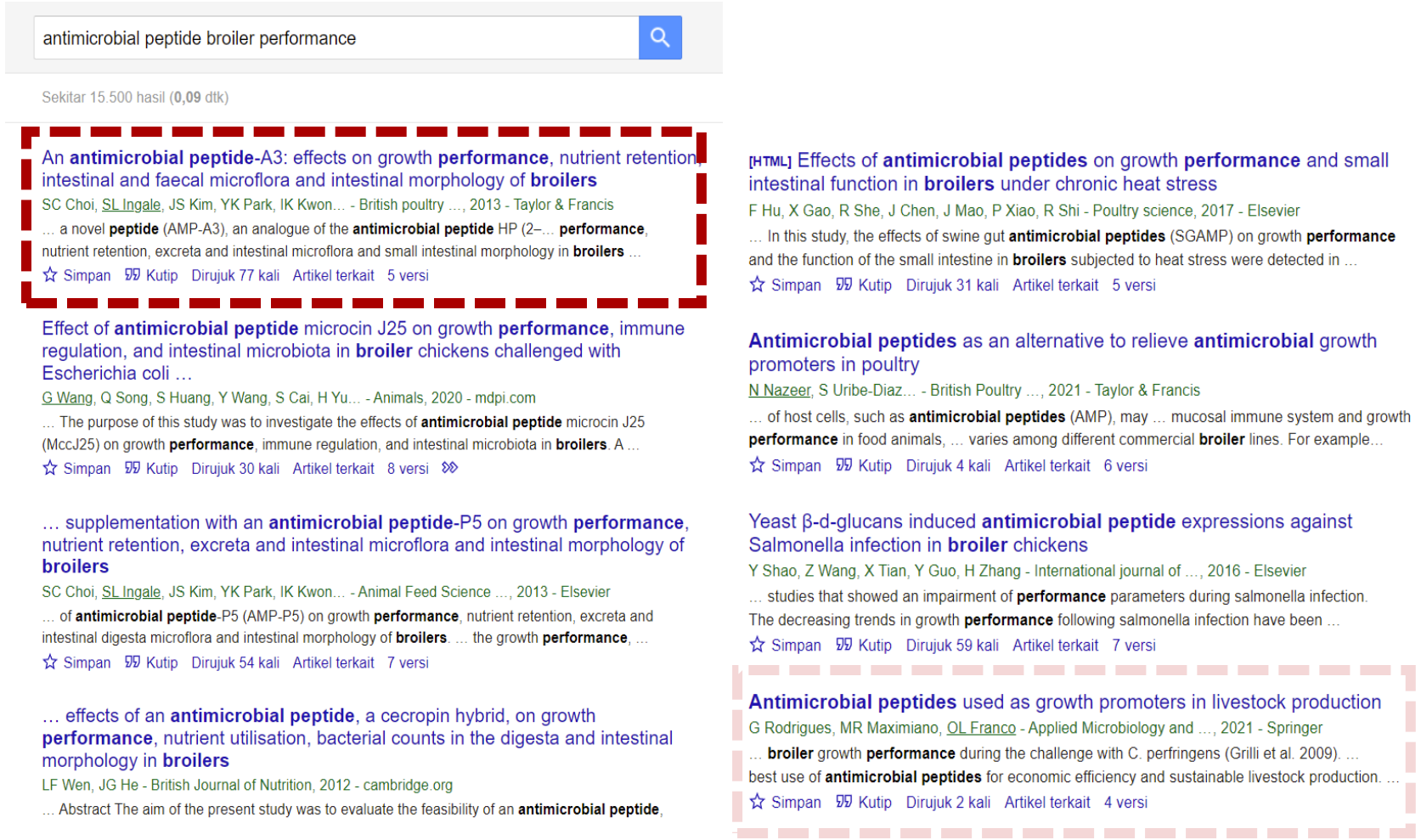


i **Level (perlakuan)**: satuan harus sama dan kalau tidak sama bisa dikonversi

ii **Subjek**: menggunakan subject penelitian yang sama, kalua berbeda terutama komparasi studi ternak ruminansia maka konversi parameter yang terpengaruh oleh masa dan volume tubuh dalam bentuk bobot badan metabolis

iii **Parameter**: sama seperti level perhatikan satuan yang digunakan

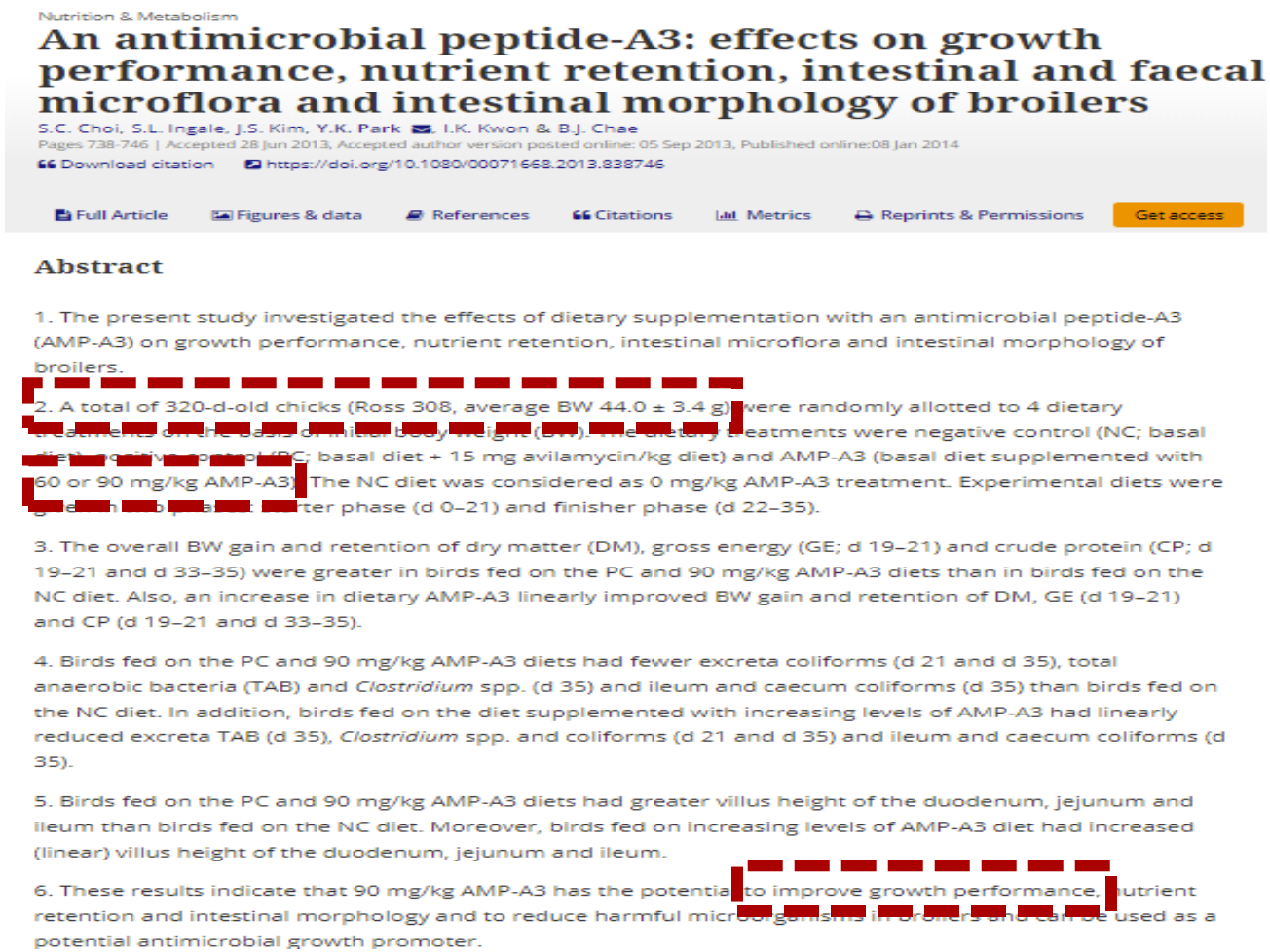
2. **Contoh:** Pencarian sumber KTI



Judul

Sumber: Basis data **scopus** → google **scholar** dan **science direct**

2. **Contoh:** Seleksi KTI (Choi 2013)



Nutrition & Metabolism

An antimicrobial peptide-A3: effects on growth performance, nutrient retention, intestinal and faecal microflora and intestinal morphology of broilers

S.C. Choi, S.L. Ingale, J.S. Kim, Y.K. Park, I.K. Kwon & B.J. Chae

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Abstract

1. The present study investigated the effects of dietary supplementation with an antimicrobial peptide-A3 (AMP-A3) on growth performance, nutrient retention, intestinal microflora and intestinal morphology of broilers.

2. A total of 320-d-old chicks (Ross 308, average BW 44.0 ± 3.4 g) were randomly allotted to 4 dietary treatments on the basis of initial body weight (BW). The dietary treatments were negative control (NC; basal diet), positive control (PC; basal diet + 15 mg avilamycin/kg diet) and AMP-A3 (basal diet supplemented with 60 or 90 mg/kg AMP-A3). The NC diet was considered as 0 mg/kg AMP-A3 treatment. Experimental diets were given in two phases: starter phase (d 0–21) and finisher phase (d 22–35).

3. The overall BW gain and retention of dry matter (DM), gross energy (GE; d 19–21) and crude protein (CP; d 19–21 and d 33–35) were greater in birds fed on the PC and 90 mg/kg AMP-A3 diets than in birds fed on the NC diet. Also, an increase in dietary AMP-A3 linearly improved BW gain and retention of DM, GE (d 19–21) and CP (d 19–21 and d 33–35).

4. Birds fed on the PC and 90 mg/kg AMP-A3 diets had fewer excreta coliforms (d 21 and d 35), total anaerobic bacteria (TAB) and *Clostridium* spp. (d 35) and ileum and caecum coliforms (d 35) than birds fed on the NC diet. In addition, birds fed on the diet supplemented with increasing levels of AMP-A3 had linearly reduced excreta TAB (d 35), *Clostridium* spp. and coliforms (d 21 and d 35) and ileum and caecum coliforms (d 35).

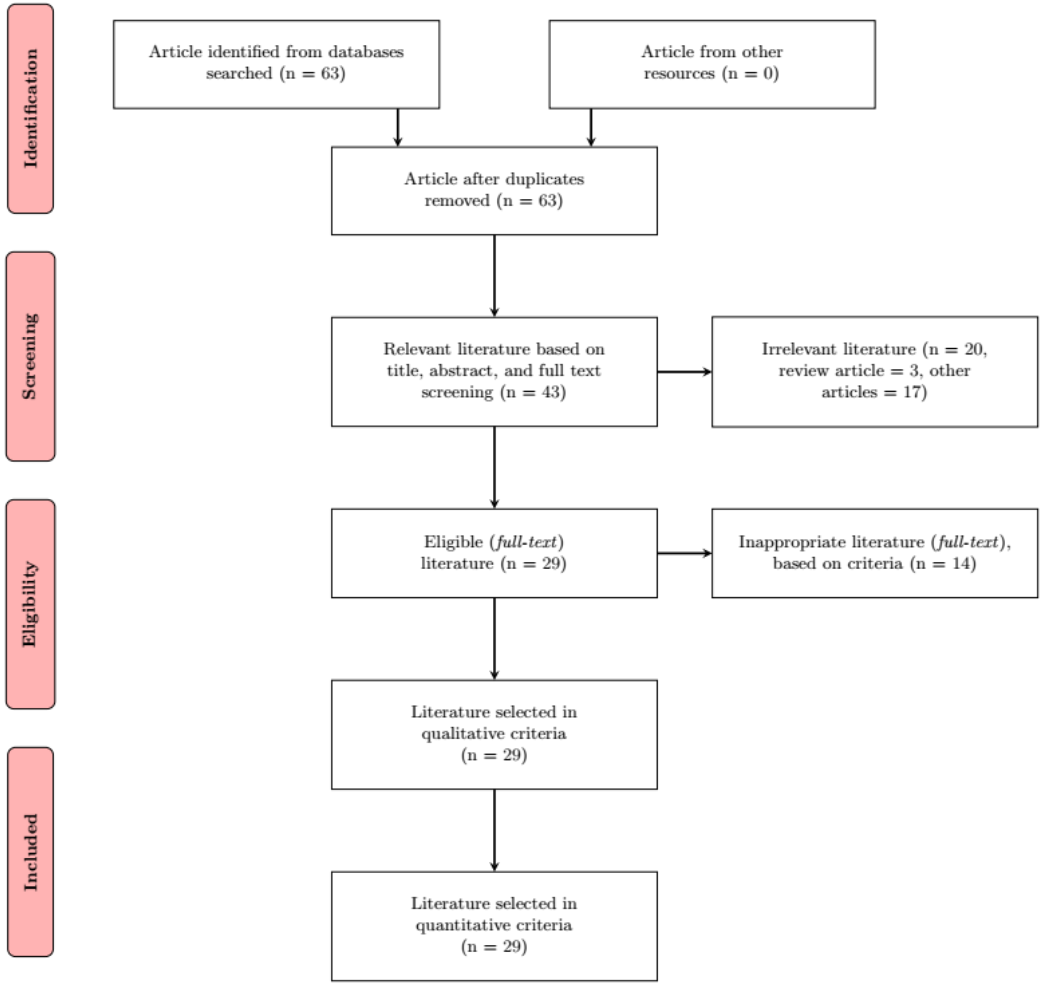
5. Birds fed on the PC and 90 mg/kg AMP-A3 diets had greater villus height of the duodenum, jejunum and ileum than birds fed on the NC diet. Moreover, birds fed on increasing levels of AMP-A3 diet had increased (linear) villus height of the duodenum, jejunum and ileum.

6. These results indicate that 90 mg/kg AMP-A3 has the potential to improve growth performance, nutrient retention and intestinal morphology and to reduce harmful microorganisms in broilers and can be used as a potential antimicrobial growth promoter.

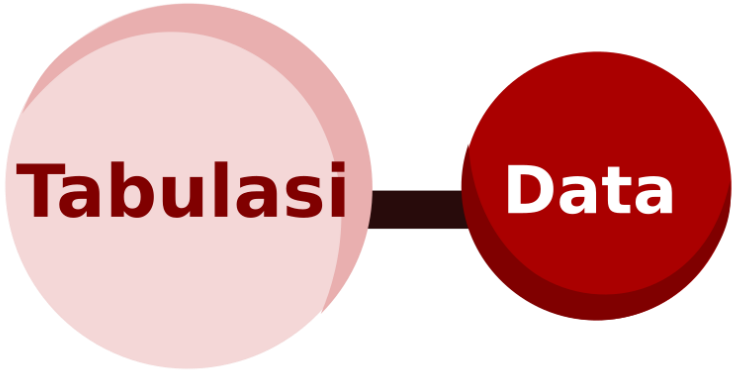
Abstrak

ii **Seleksi**: **satuan** level/dosis tertera, **ternak** (ayam pedaging/broiler), dan parameter performa

2. **Contoh:** Alur Seleksi KTI



3. Tabulasi data



i Pengumpulan data dari KTI ke dalam *spreadsheet*

ii Model statistik meta-analisis mengacu pada *linear mixed model* (St-Pierre 2001)

$$Y_{ij} = B_0 + B_1 X_{ij} + s_i + e_{ij}$$

Y_{ij} = variabel dependen (fcr)
B_0 = titik potong (intercept)
B_1 = koefisien regresi linier (slope)
X_{ij} = variabel independen (level PAM)
s_i = efek acak dari perbedaan studi
e_{ij} = kesalahan yang tidak dapat dijelaskan

3. **Contoh:** Tabulasi data (Choi 2013)

Table 2. *Effect of dietary supplementation of antimicrobial peptide-A3 (AMP-A3) on growth performance of broilers*[1,2]

		AMP-A3, mg/kg				*P*-values[3]		
Item	PC	0 (NC)	60	90	SEM	T	L	Q
Starter (d 0–21)								
Body weight gain, g	732[a]	693[b]	704[b]	722[a]	4.48	0.010	0.002	0.525
Feed intake, g	1143	1114	1123	1136	4.68	0.126	0.140	0.902
FCR[4]	1.56	1.61	1.60	1.57	0.01	0.080	0.119	0.680
Finisher (d 22–35)								
Body weight gain, g	1153[a]	1077[c]	1088[c]	1121[b]	10.21	0.016	0.043	0.543
Feed intake, g	2075	2013	2010	2048	15.63	0.439	0.326	0.500
FCR	1.80	1.87	1.85	1.83	0.01	0.098	0.085	0.904
Overall (d 0–35)								
Body weight gain, g	1885[a]	1769[c]	1792[bc]	1843[ab]	13.50	0.001	0.004	0.341
Feed intake, g	3218	3127	3134	3184	17.84	0.217	0.158	0.510
FCR	1.71[b]	1.77[a]	1.75[ab]	1.73[ab]	0.01	0.034	0.056	0.935

[a,b,c]Mean values within the same row sharing a common superscript letter are not statistically different at $P < 0.05$.

[1]The dietary treatments were the following: NC: negative control (basal diet without any antimicrobials); PC: positive control (basal diet + 15 mg avilamycin/kg diet) and AMP-A3 (basal diet supplemented with 60 and 90 mg/kg AMP-A3). The NC (diet without antimicrobials) was considered as 0 mg/kg AMP-A3.

[2]Data are means of 4 pens of 20 birds each.

[3]T: overall effect of treatments; L: linear effect of increasing AMP-A3; Q: quadratic effect of increasing AMP-A3 (0, 60 and 90 mg/kg of diet).

[4]FCR, feed conversion ratio.

i Pengumpulan data dari KTI ke dalam *spreadsheet*

3. **Contoh:** Tabulasi data

studi	pengarang	tahun	PAM	Level (mg/Kg as fed)	breed	periode starter	periode finisher	total periode	starter bb, Kg	starter pbbh, g/hari	starter kph, g/hari	starter fcr
1	Choi et al.	2013	Kontrol	0.0000	ROSS 308	1-21	22-35	1-35	737.0000	33.0000	53.0500	1.6100
1	Choi et al.	2013	PAM A3	60.0000	ROSS 308	1-21	22-35	1-35	747.9200	33.5200	53.4800	1.6000
1	Choi et al.	2013	PAM A3	90.0000	ROSS 308	1-21	22-35	1-35	765.9800	34.3800	54.1000	1.5700
2	Choi et al.	2013	Kontrol	0.0000	ROSS 308	1-21	22-35	1-35	803.9900	36.1900	55.9500	1.5500
2	Choi et al.	2013	PAM P5	40.0000	ROSS 308	1-21	22-35	1-35	821.0000	37.0000	56.5200	1.5300
2	Choi et al.	2013	PAM P5	60.0000	ROSS 308	1-21	22-35	1-35	836.9600	37.7600	56.7100	1.5000
3	Wen and He	2012	Kontrol	0.0000	Lingnan	14-28	29-42	14-42	542.0000	21.4000	41.3000	1.9300
3	Wen and He	2012	Cecropin A	2.0000	Lingnan	14-28	29-42	14-42	545.5000	21.5000	39.4000	1.8300
3	Wen and He	2012	Cecropin A	4.0000	Lingnan	14-28	29-42	14-42	551.5000	21.9000	38.9000	1.7800
3	Wen and He	2012	Cecropin A	6.0000	Lingnan	14-28	29-42	14-42	545.0000	21.6000	34.7000	1.6100

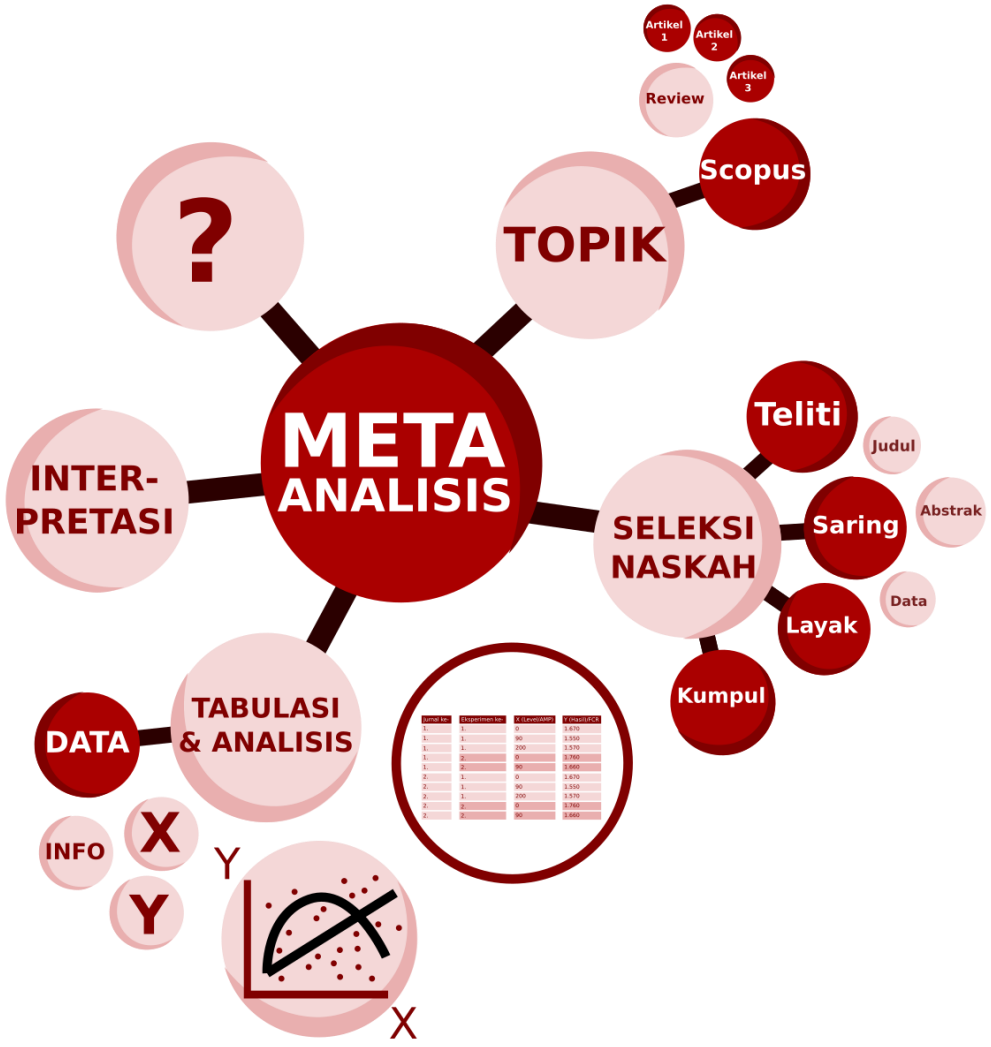
$$Y_{ij} = B_0 + B_1 X_{ij} + s_i + e_{ij}$$

Tugas Minggu Ke-1

- **Mencari sumber KTI** yang memiliki kesesuaian dengan topik meta-analisis dan melakukan **tabulasi data** dari rujukan KTI tersebut (9 Juni 2022)

BRIN
BADAN RISET
DAN INOVASI NASIONAL

Selesai
Terima kasih



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Referensi

Choi S.C., Ingale S.L., Kim J.S., Park Y.K., Kwon I.K., Chae B.J., 2013. An antimicrobial peptide-A3: effects on growth performance, nutrient retention, intestinal and faecal microflora and intestinal morphology of broilers. Br. Poult. Sci. 54, 738–746, https://doi.org/10.1080/00071668.2013.838746

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St-Pierre N.R., 2001. Invited review: integrating quantitative findings from multiple studies using mixed model methodology. J. Dairy Sci. 84, 741–755, https://doi.org/10.3168/jds.S0022-0302(01)74530-4

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