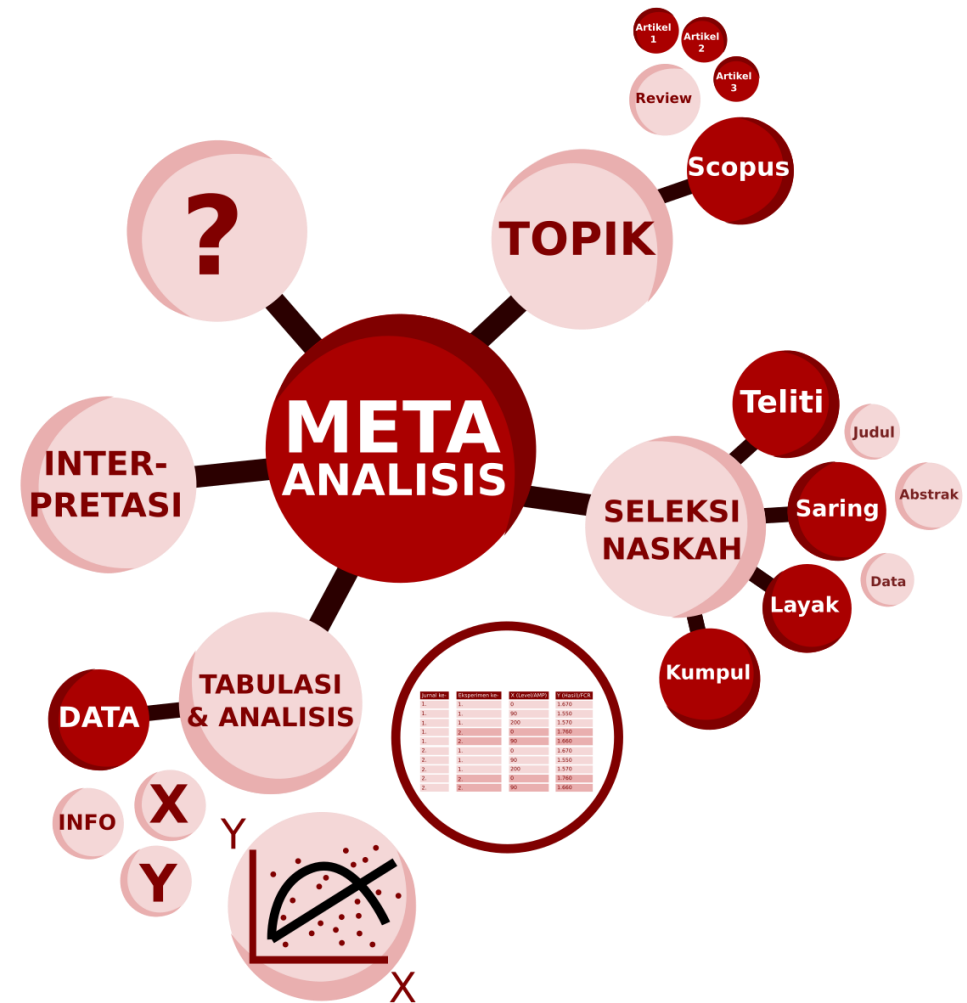


Strategi pemilihan topik riset meta-analisis, pencarian dan seleksi sumber data dari KTI, serta penyusunan data

**Pusat Riset Peternakan**

**Organisasi Riset Pertanian dan Pangan**

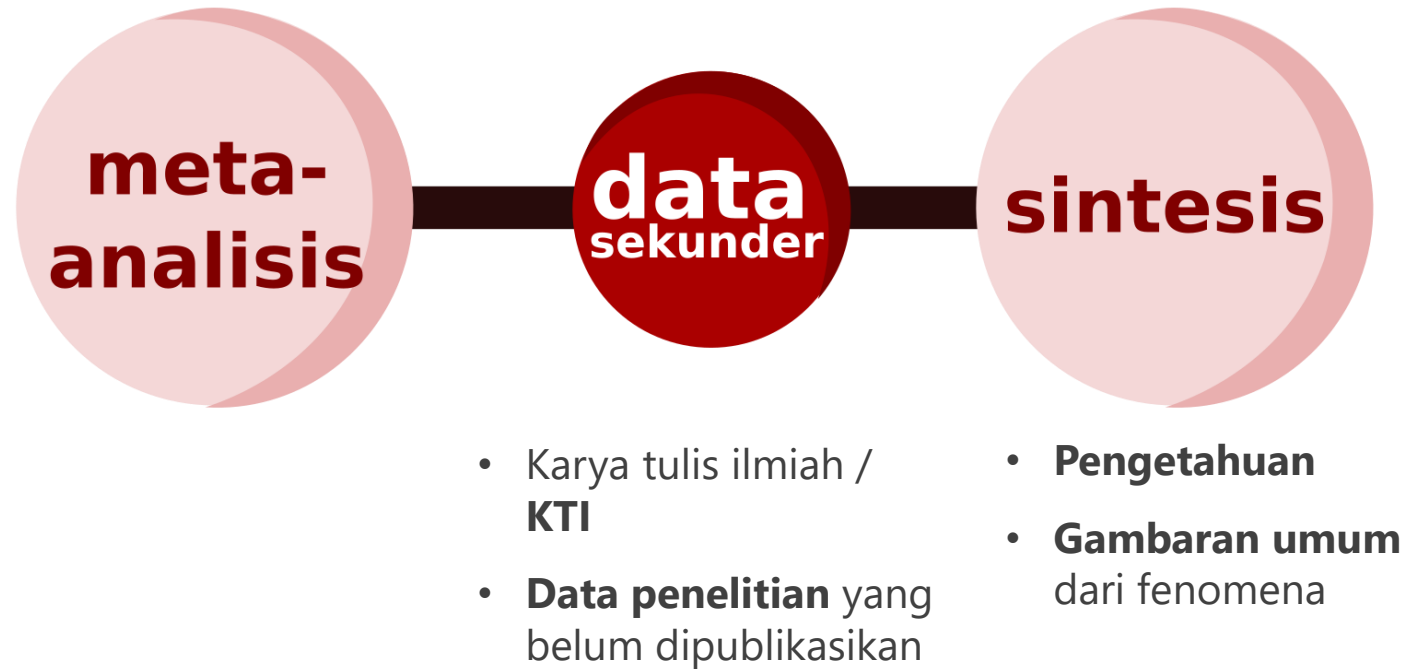
**Badan Riset dan Inovasi Nasional**



# Pengertian meta-analisis

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

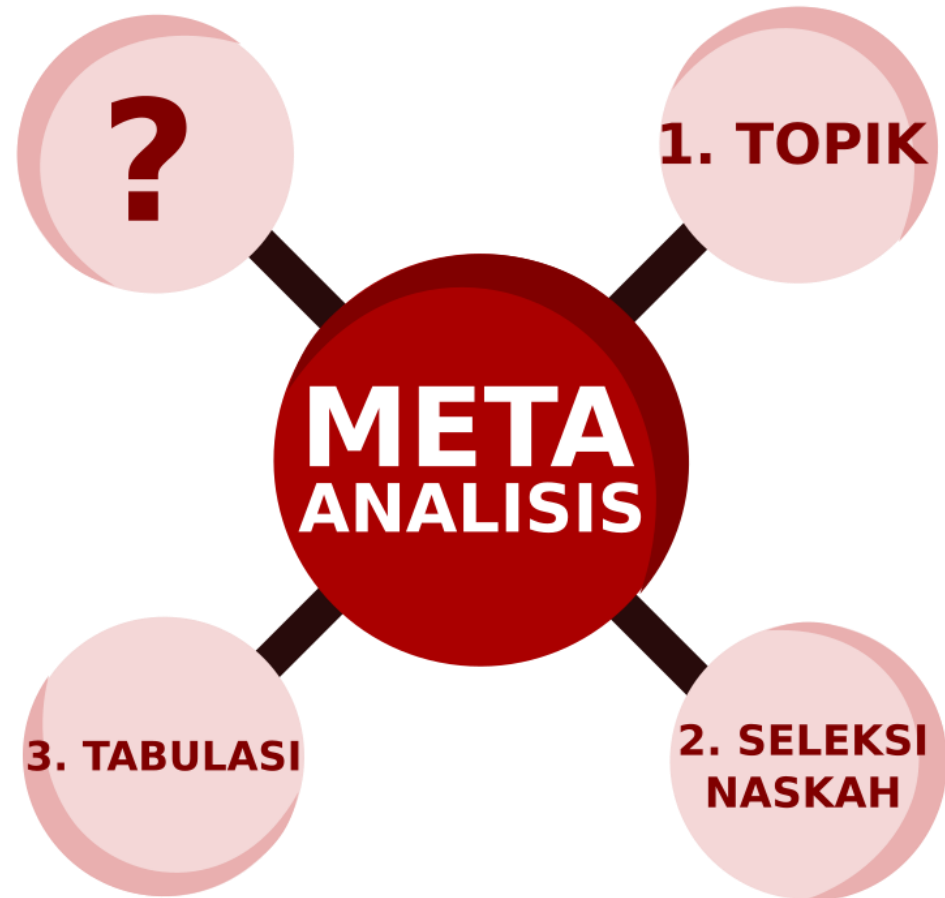


# Menentukan topik dan menghimpun data

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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)

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**Level**

**Subjek**

**Parameter**

i

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

ii

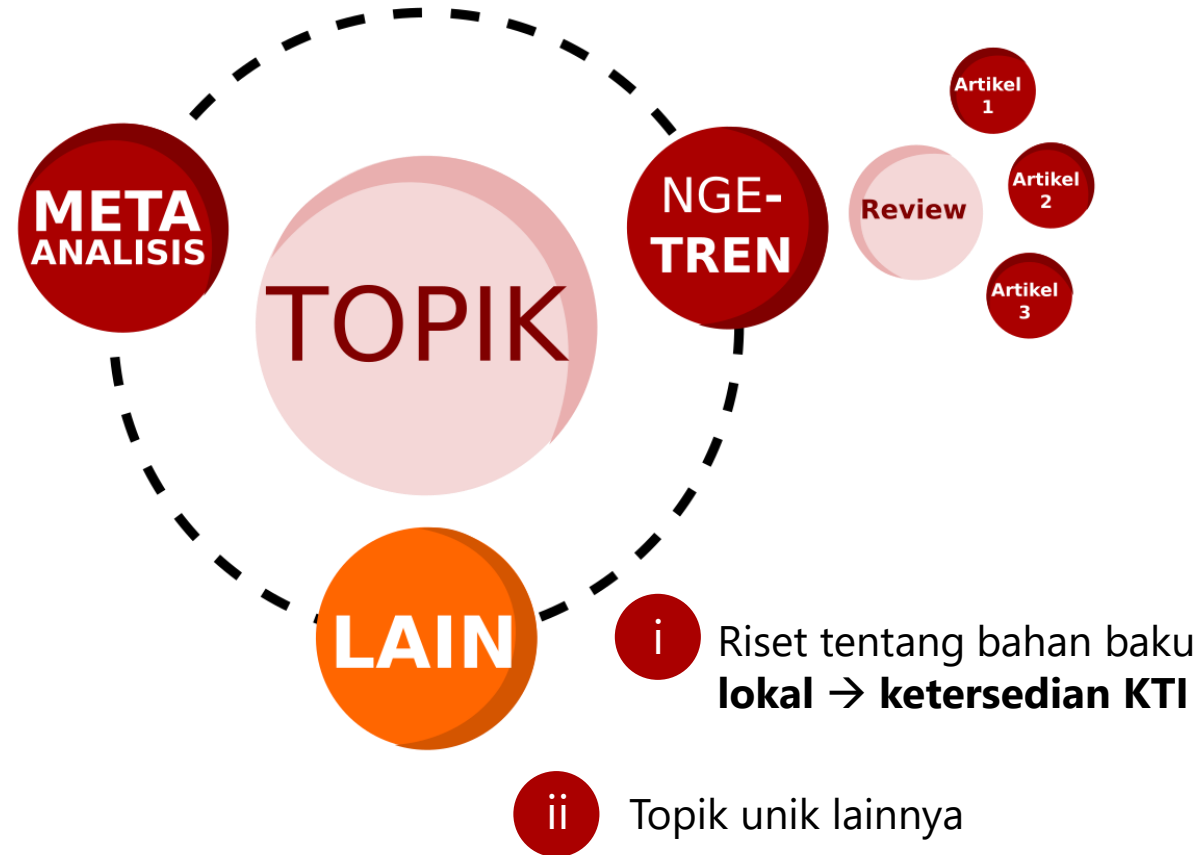
**Subjek:** Ruminansia (kambing dan domba) dan monogastrik (ayam pedaging/broiler dan babi)

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))

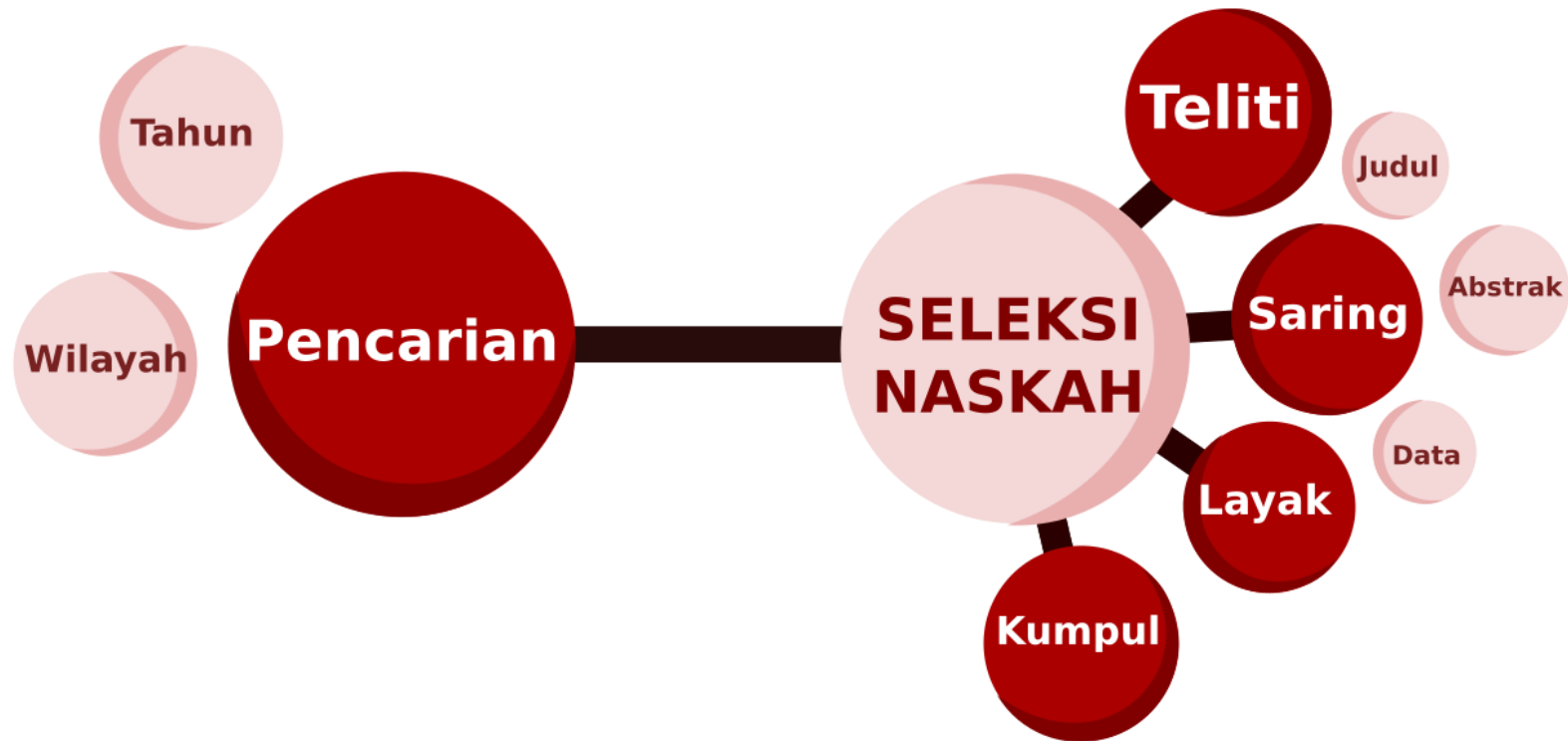
# 1. Sumber inspirasi topik

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## 2. Pencarian dan seleksi sumber KTI

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

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

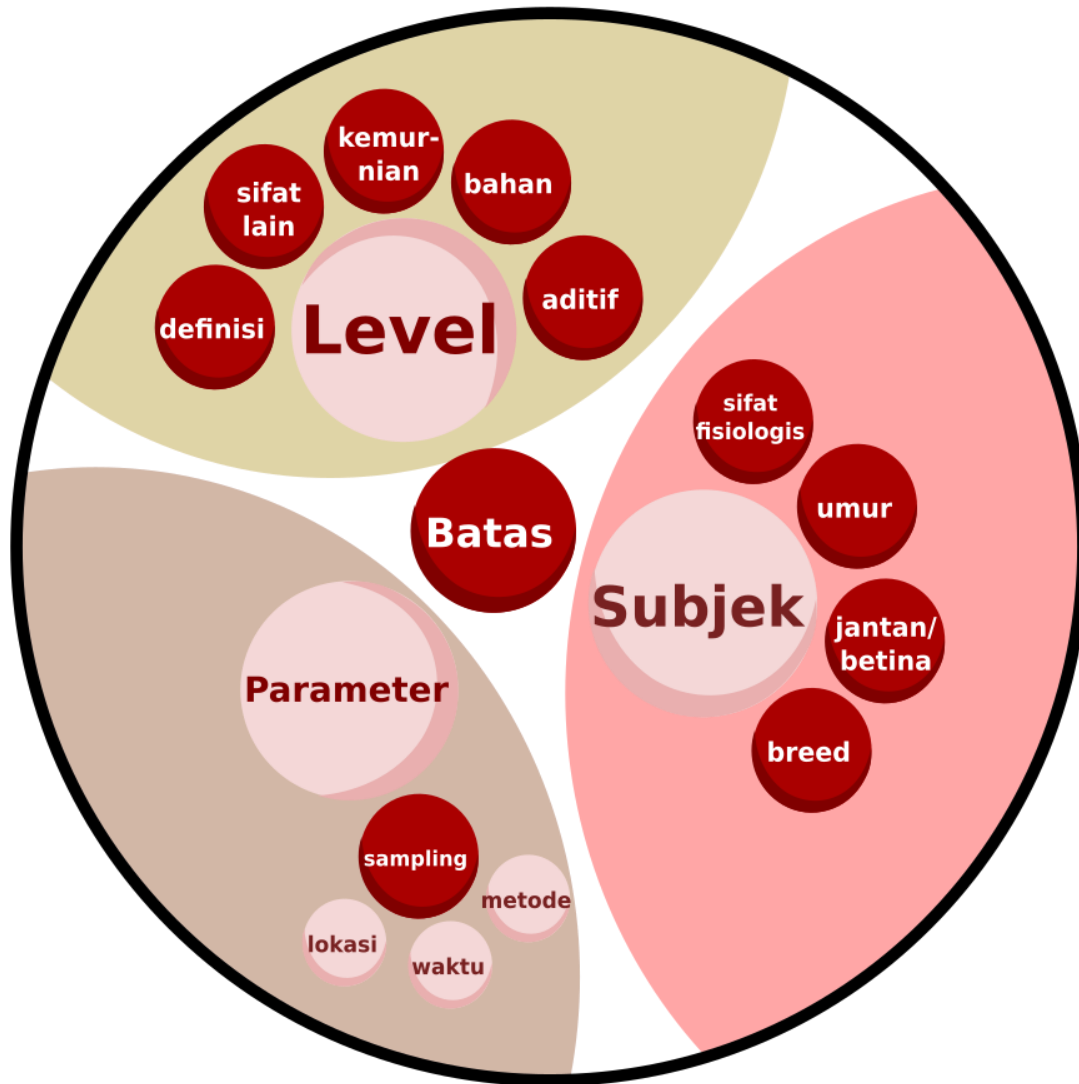
## 2. Pembatasan sumber KTI

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## 2. Kriteria seleksi

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- i **Level (perlakuan):** satuan harus sama dan kalau tidak sama bisa dikonversi
- ii **Subjek:** menggunakan subject penelitian yang sama, kalau 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

antimicrobial peptide broiler performance

Sekitar 15.500 hasil (0,09 dtk)

**An antimicrobial peptide-A3: effects on growth performance, nutrient retention, intestinal and faecal microflora and intestinal morphology of broilers**  
SC Choi, [SL Ingale](#), JS Kim, YK Park, IK Kwon... - British poultry ..., 2013 - Taylor & Francis  
... a novel **peptide** (AMP-A3), an analogue of the **antimicrobial peptide** HP (2-... **performance**, nutrient retention, excreta and intestinal microflora and small intestinal morphology in **broilers** ...  
☆ Simpan Kutip Dirujuk 77 kali Artikel terkait 5 versi

**Effect of antimicrobial peptide microcin J25 on growth performance, immune regulation, and intestinal microbiota in broiler chickens challenged with Escherichia coli ...**  
[G Wang](#), Q Song, S Huang, Y Wang, S Cai, H Yu... - Animals, 2020 - mdpi.com  
... The purpose of this study was to investigate the effects of **antimicrobial peptide** microcin J25 (MccJ25) on growth **performance**, immune regulation, and intestinal microbiota in **broilers**. A ...  
☆ Simpan Kutip Dirujuk 30 kali Artikel terkait 8 versi

... supplementation with an **antimicrobial peptide**-P5 on growth **performance**, nutrient retention, excreta and intestinal microflora and intestinal morphology of **broilers**  
SC Choi, [SL Ingale](#), JS Kim, YK Park, IK Kwon... - Animal Feed Science ..., 2013 - Elsevier  
... of **antimicrobial peptide**-P5 (AMP-P5) on growth **performance**, nutrient retention, excreta and intestinal digesta microflora and intestinal morphology of **broilers**. ... the growth **performance**, ...  
☆ Simpan Kutip Dirujuk 54 kali Artikel terkait 7 versi

... effects of an **antimicrobial peptide**, a cecropin hybrid, on growth **performance**, nutrient utilisation, bacterial counts in the digesta and intestinal morphology in **broilers**  
LF Wen, JG He - British Journal of Nutrition, 2012 - cambridge.org  
... Abstract The aim of the present study was to evaluate the feasibility of an **antimicrobial peptide**,

**[HTML] Effects of antimicrobial peptides on growth performance and small intestinal function in broilers under chronic heat stress**  
F Hu, X Gao, R She, J Chen, J Mao, P Xiao, R Shi - Poultry science, 2017 - Elsevier  
... In this study, the effects of swine gut **antimicrobial peptides** (SGAMP) on growth **performance** and the function of the small intestine in **broilers** subjected to heat stress were detected in ...  
☆ Simpan Kutip Dirujuk 31 kali Artikel terkait 5 versi

**Antimicrobial peptides as an alternative to relieve antimicrobial growth promoters in poultry**  
[N Nazeer](#), S Uribe-Diaz... - British Poultry ..., 2021 - Taylor & Francis  
... of host cells, such as **antimicrobial peptides** (AMP), may ... mucosal immune system and growth **performance** in food animals, ... varies among different commercial **broiler** lines. For example...  
☆ Simpan Kutip Dirujuk 4 kali Artikel terkait 6 versi

**Yeast  $\beta$ -d-glucans induced antimicrobial peptide expressions against Salmonella infection in broiler chickens**  
Y Shao, Z Wang, X Tian, Y Guo, H Zhang - International journal of ..., 2016 - Elsevier  
... studies that showed an impairment of **performance** parameters during salmonella infection. The decreasing trends in growth **performance** following salmonella infection have been ...  
☆ Simpan Kutip Dirujuk 59 kali Artikel terkait 7 versi

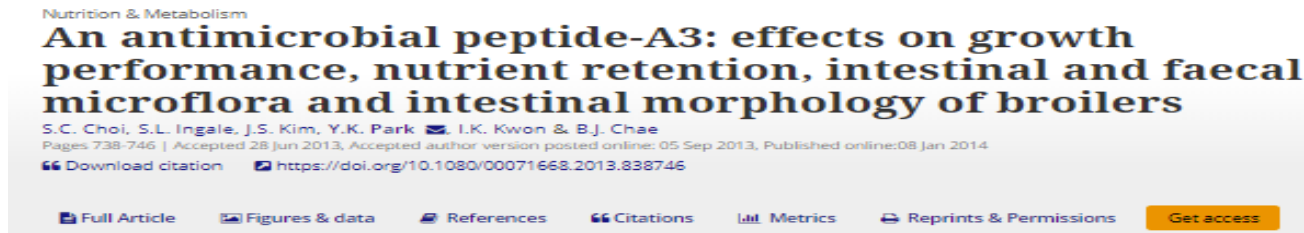
**Antimicrobial peptides used as growth promoters in livestock production**  
[G Rodrigues](#), MR Maximiano, [OL Franco](#) - Applied Microbiology and ..., 2021 - Springer  
... **broiler** growth **performance** during the challenge with *C. perfringens* (Grilli et al. 2009). ... best use of **antimicrobial peptides** for economic efficiency and sustainable livestock production. ...  
☆ Simpan Kutip Dirujuk 2 kali Artikel terkait 4 versi

Judul

i

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

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



### 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  $44.0 \pm 3.4$  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 to broilers in 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.

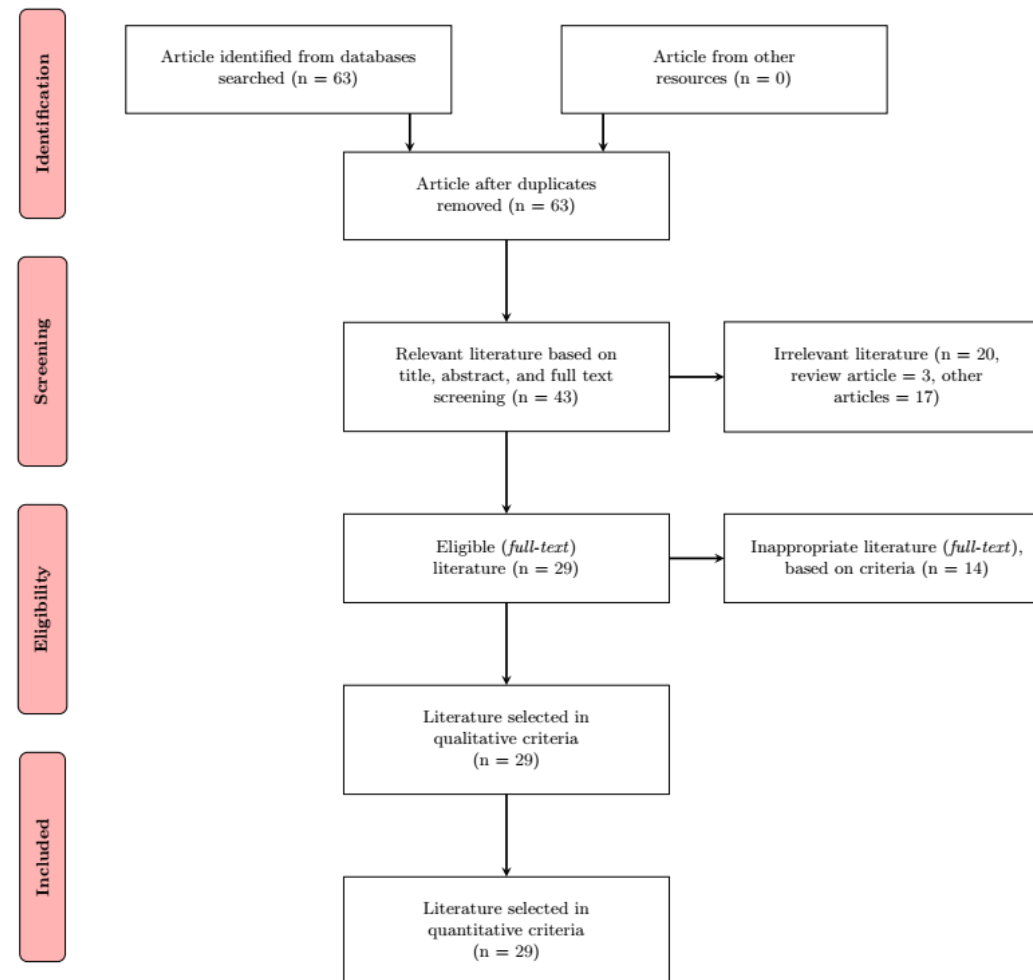
Abstrak

ii

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

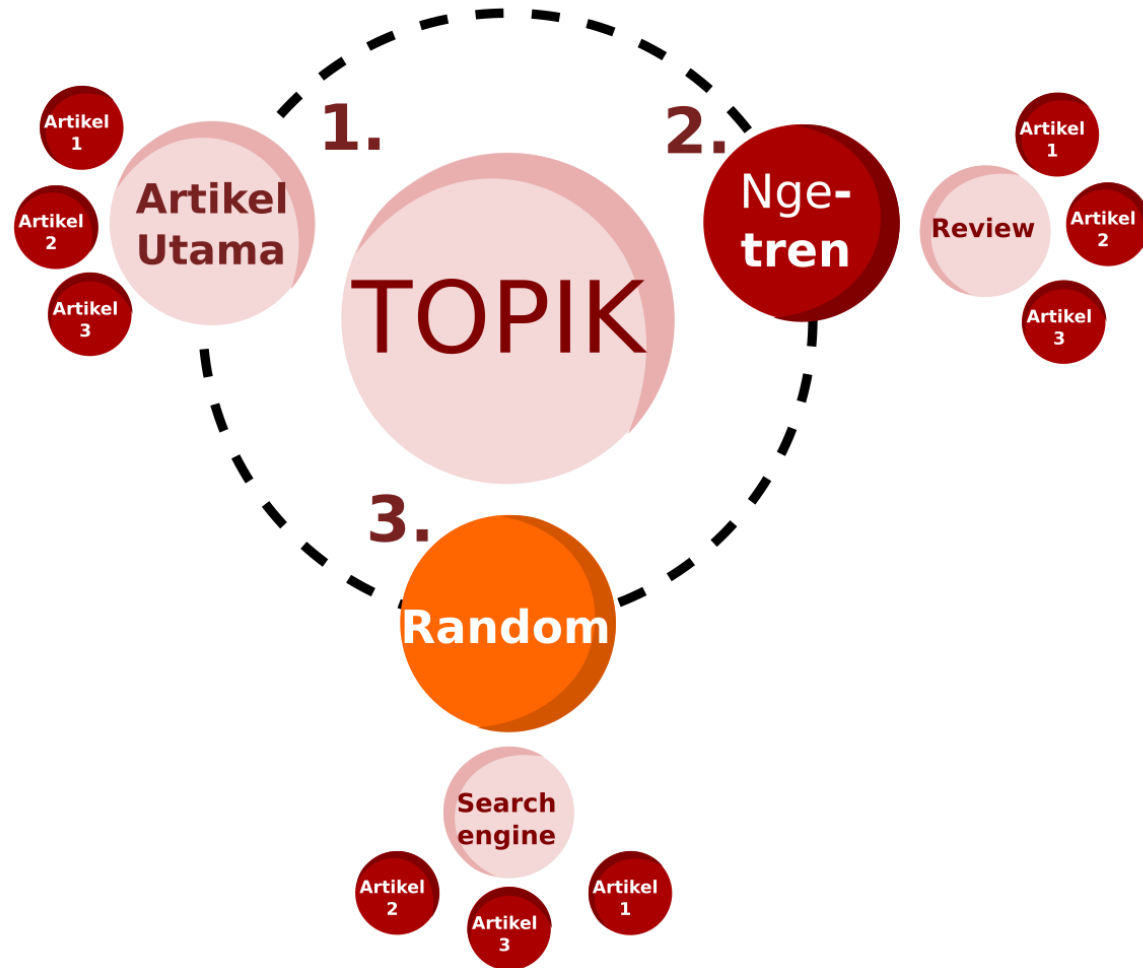
## 2. Contoh: Alur Seleksi KTI

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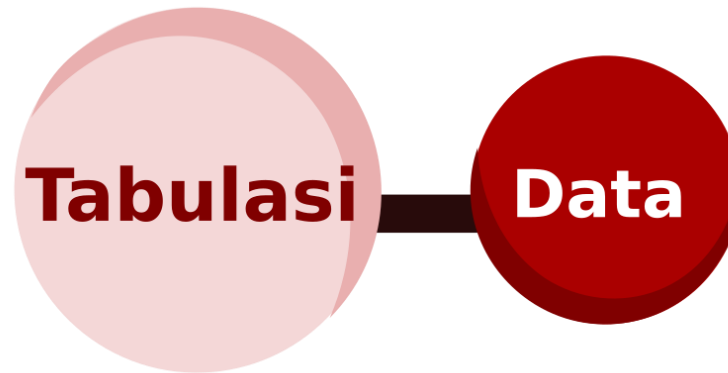
## 2. Menelusuri KTI

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### 3. Tabulasi data

---



i Pengumpulan data dari KTI ke dalam *spreadsheet*

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

$$Y_{ij} = B_0 + B_1X_{ij} + s_i + e_{ij}$$

$Y_{ij}$  = 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<sup>1,2</sup>*

Item	PC	AMP-A3, mg/kg			SEM	P-values <sup>3</sup>		
		0 (NC)	60	90		T	L	Q
Starter (d 0–21)								
Body weight gain, g	732 <sup>a</sup>	693 <sup>b</sup>	704 <sup>b</sup>	722 <sup>a</sup>	4.48	0.010	0.002	0.525
Feed intake, g	1143	1114	1123	1136	4.68	0.126	0.140	0.902
FCR <sup>4</sup>	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 <sup>a</sup>	1077 <sup>c</sup>	1088 <sup>c</sup>	1121 <sup>b</sup>	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 <sup>a</sup>	1769 <sup>c</sup>	1792 <sup>bc</sup>	1843 <sup>ab</sup>	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 <sup>b</sup>	1.77 <sup>a</sup>	1.75 <sup>ab</sup>	1.73 <sup>ab</sup>	0.01	0.034	0.056	0.935

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

<sup>1</sup>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.

<sup>2</sup>Data are means of 4 pens of 20 birds each.

<sup>3</sup>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).

<sup>4</sup>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

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



## Tugas

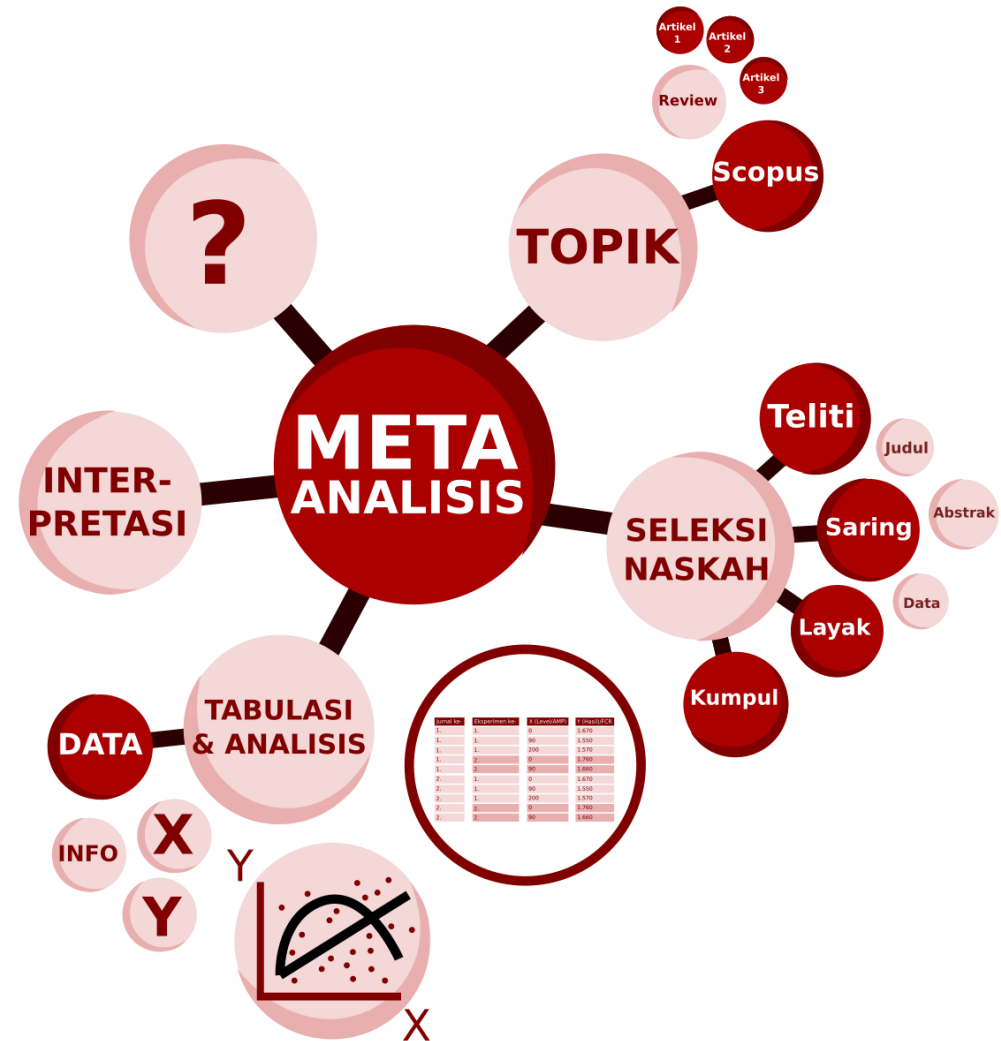


# Selesai Terima kasih

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**Badan Riset dan Inovasi Nasional**



# Referensi

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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>

Sauvant D., Schmidely P., Daudin J.J., St-Pierre N.R., 2008. Meta-analyses of experimental data in animal nutrition. Animal 2, 1203–1214, <https://doi.org/10.1017/s1751731108002280>

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](https://doi.org/10.3168/jds.S0022-0302(01)74530-4)

Yanza, Y.R. *et al.*, 2020. The effects of dietary medium-chain fatty acids on ruminal methanogenesis and fermentation in vitro and in vivo: A meta-analysis. Bahan Presentasi