

Use of Antimicrobial Agents in Veterinary Medicine in Thailand



18 October 2017

Topics

- **AHPA**
- **Acknowledgments**
- **About the Surveillance**
- **References**
- **Results**

AHPA : Animal Health Products Association

- Established since 1983
- 77 members
- 9 Executive Committees & 3 Advisories
- Scope of AHPA work

Liaison with

- | | | |
|---------------------------------------------|------------------------------------------------------------------------------------|---------------------------|
| ▪ Authorities |  | Rules & Regulations |
| ▪ Academy |  | Technical , R&D |
| ▪ Professional Council |  | Implementation, Ethic |
| ▪ Members |  | Data Base, Implementation |
| ▪ CSR (Corporate Social Responsibilities) | | |

Acknowledgments

- **AHPA**
- **DLD, MOAC**

About the Surveillance

- **From Animal Population to Production**
- **From Sell to kg AI.**
- **PCU (Population Correction Unit)**

Ref : ESVAC (European Surveillance of Veterinary Antimicrobial Consumption)

Weights used to calculate PCU

Animal category	Weight in kg
Slaughtered or livestock (Eurostat)	
Slaughtered cow	425
Slaughtered heifer	200
Slaughtered bullocks and bulls	425
Slaughtered calves and young cattle	140
Dairy cow	425
Slaughtered pig	65
Living sow	240
Broiler	1
Turkey	6.5
Slaughtered sheep and goats	20
Living sheep	75
Horse	400
Rabbit	1.4
Imported/exported for fattening or slaughter (TRACES data)	
Slaughtered bovine	425
Fattening bovine	140
Slaughtered pig	65
Fattening pig	25
Slaughtered poultry	1
Slaughtered sheep	20
Fattening sheep	20
Slaughtered goat	20
Fattening goat	20

Animal Species & Antibiotic Categories

Species

Ab Cat

- Poultry
 - Broiler
 - Layer
 - Breeder
 - Duck
 - Pig
 - Cattle
 - Aquatic Animal
- | | |
|------|------------------|
| Gr.1 | : Tetracycline |
| Gr.2 | : Penicillin |
| Gr.3 | : Cephalosporin |
| Gr.4 | : Sulfonamide |
| Gr.5 | : Macrolide |
| Gr.6 | : Aminoglycoside |
| Gr.7 | : Quinolone |
| Gr.8 | : Others |

References

- **AHPA 2017 Market information**
- **DLD**
- **Thai Feed Mills Association**

RESULTS

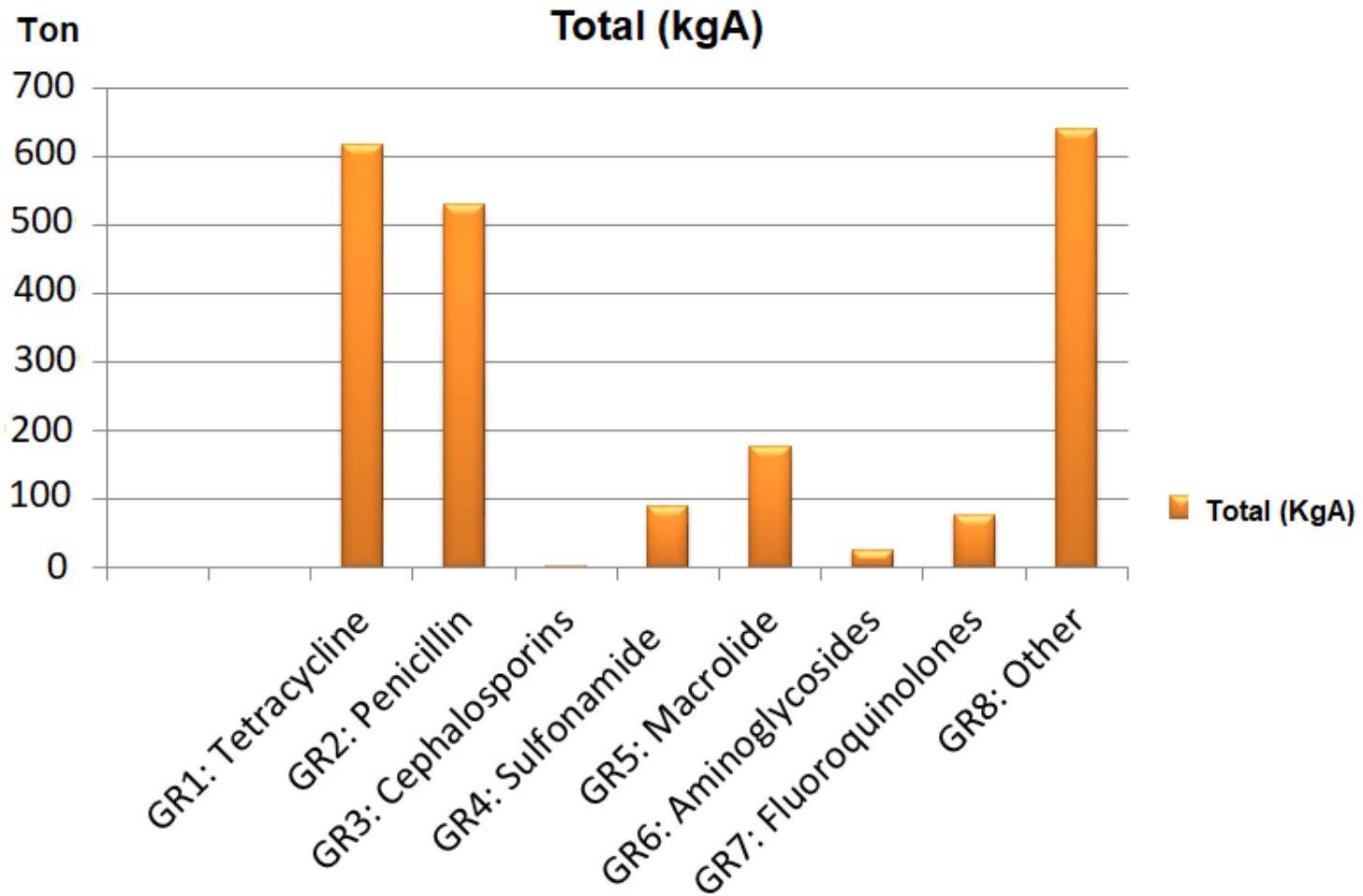


2013 Antibiotic Consumption

(Unit : KgA)

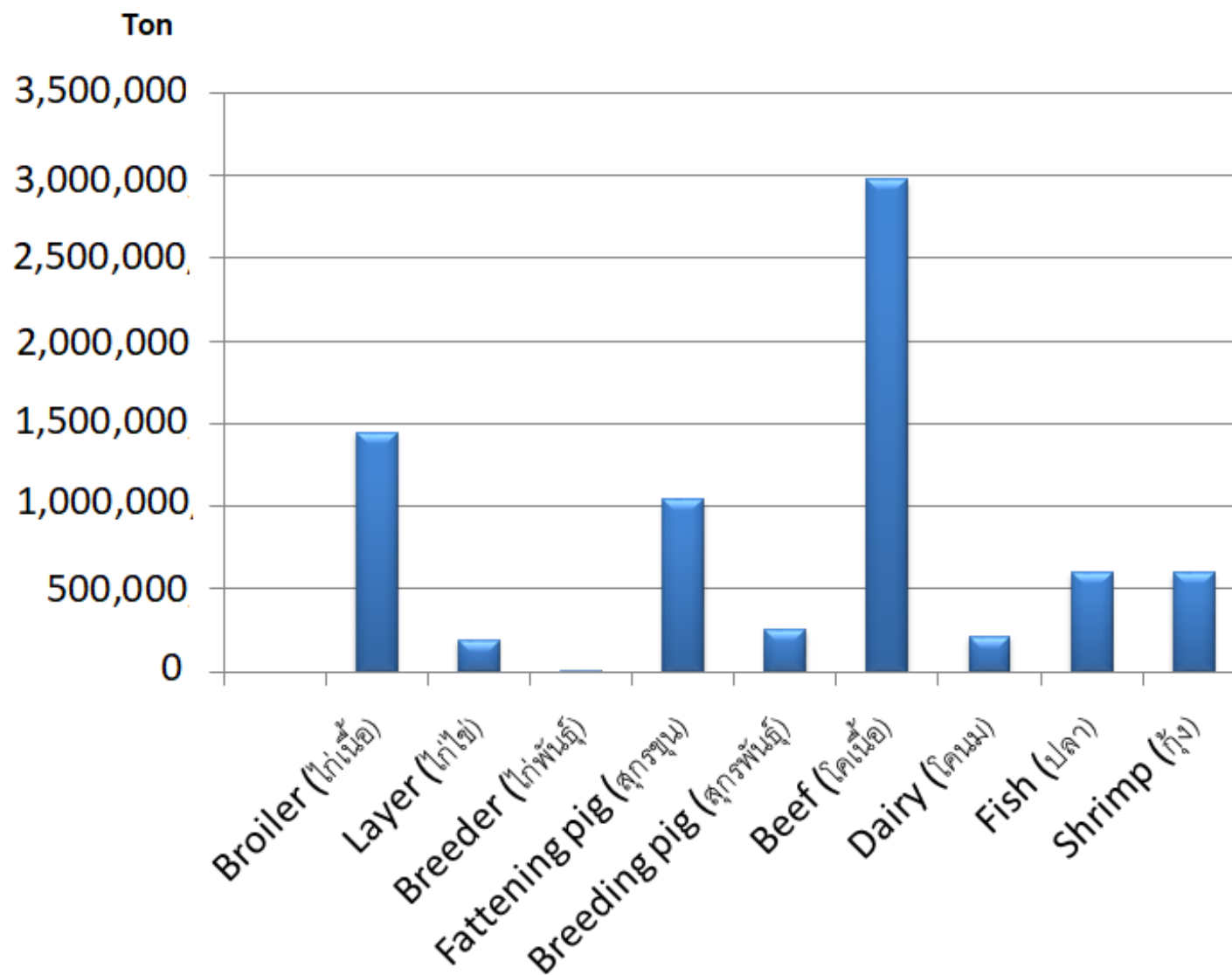
Antibiotic Categories	Total (kg A)
GR1: Tetracycline	619,311
GR2: Penicillin	530,620
GR3: Cephalosporins	560
GR4: Sulfonamide	90,055
GR5: Macrolide	176,083
GR6: Aminoglycosides	24,971
GR7: Fluoroquinolones	75,238
GR8: Other	640,590
Total	2,157,428

2013 Antibiotic Consumption



2013 Annual Production of Livestock & Aquaculture in Thailand

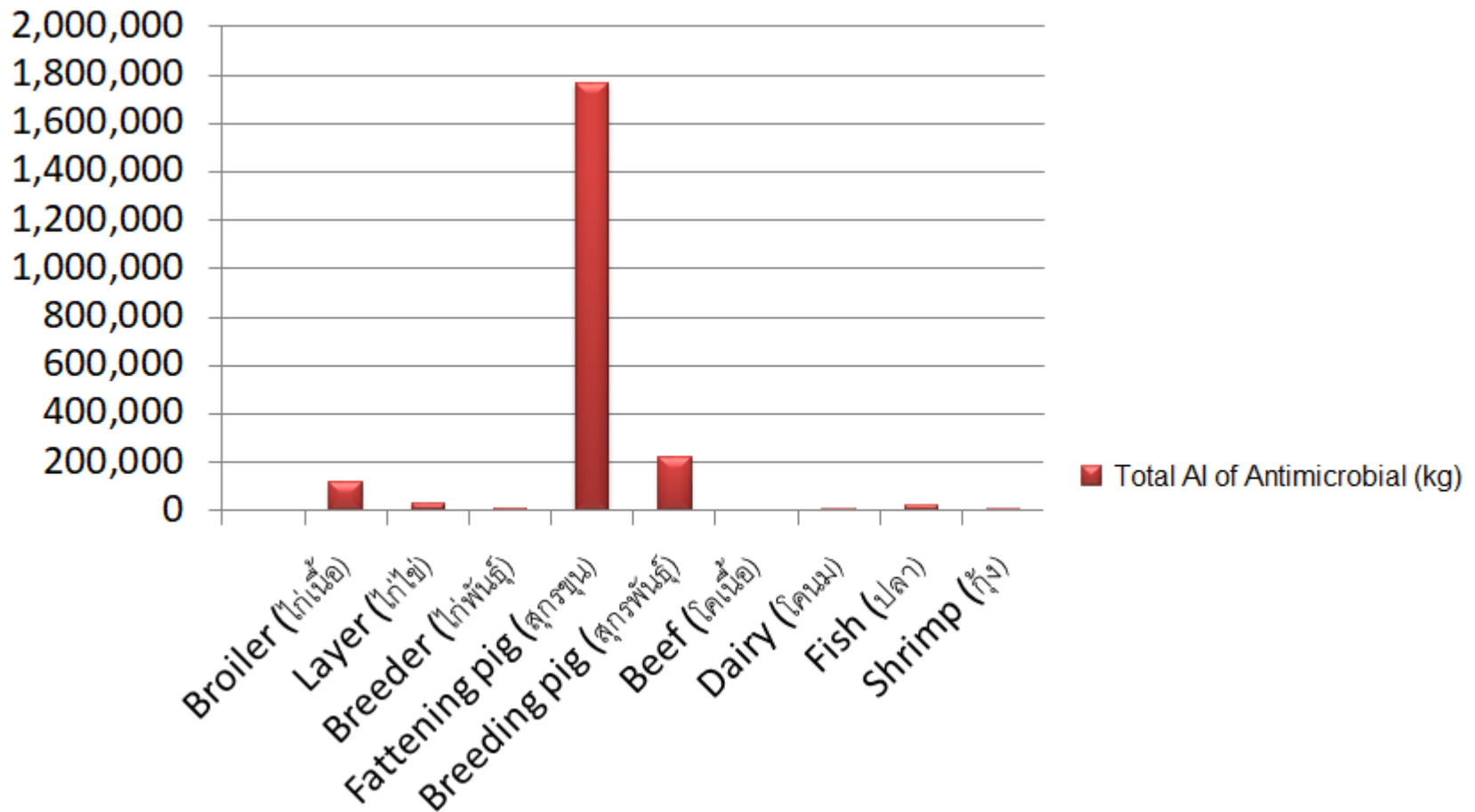
Unit : Kg PCU



2013 Antibiotics Consumption

ข้อมูลปริมาณการยาใช้ต้านจุลชีพในสัตว์ ปี 2013
แยกรายชนิดสัตว์ไก่ สุกร โค ปลา และกุ้ง (Poultry, Swine, Cattle, Fish & Shrimp)

Total AI of antimicrobial (kg)



2013 Antibiotic Consumption

ข้อมูลปริมาณการยาใช้ด้านจลชีพในสัตว์ ปี พ.ศ. 2556 แยกรายชนิดสัตว์
: ไก่ สุกร โค ปลา และกุ้ง (Poultry, Swine, Cattle, Fish & Shrimp)

Species	Total AI of antimicrobial (kg)	Total AI of antimicrobial (mg)	PCU = population*aw		PCU	Total mg /PCU
			Population	AW		
Poultry						
Broiler (ไก่เนื้อ)	121,087.72	121,087,720,699.82	1,449,000,000.00	1.00	1,449,000,000.00	16.29
Layer (ไก่ไข่)	31,133.97	31,133,968,394.79	95,238,162.00	2.00	190,476,324.00	4.19
Breeder (ไก่พันธุ์)	11,856.95	11,856,947,874.46	1,032,324.00	1.00	1,032,324.00	1.60
Swine						
Fattening pig (สุกรขุน)	1,769,925.94	1,769,925,938,971.29	16,000,000.00	65.00	1,040,000,000.00	238.17
Breeding pig (สุกรพันธุ์)	223,422.79	223,422,788,045.13	1,084,305.00	240.00	260,233,200.00	30.06
Cattle						
Beef (โคเนื้อ)	0.00	0.00	7,000,000.00	425.00	2,975,000,000.00	0
Dairy (โคนม)	1,024.00	1,024,000,000.00	500,000.00	425.00	212,500,000.00	0.14
Aquatic animal						
Fish (ปลา)	24,000.00	24,000,000,000.00	600,000,000.00	1.00	600,000,000.00	3.23
Shrimp (กุ้ง)	3,000.00	3,000,000,000.00	600,000,000.00	1.00	600,000,000.00	0.40
Total	2,185,451.36	2,185,451,363,985.48			7,328,241,848.00	298.22

2016 Thailand PCU Data by Animal Species

	mg/PCU
1. Poultry	
1.1 Broiler	16.29
1.2 Layer	4.19
1.3 Breeder	1.60
2. Swine	
2.1 Fattening	238.17
2.2 Breeder	1.60
3. Cattle	
3.1 Beef	-
3.2 Dairy	0.14
4. Aqua	
4.1 Fish	3.23
4.2 Shrimp	0.40



298 mg/PCU

2013 Antibiotic Consumption (Unit : KgA)

Antimicrobial Drug	Poultry (kg)			Swine (kg)				Total (kgA)
	Broiler	Layer	Breeder	Fattening		Breeding		
	SP	SP	SP	FA	INJ	FA	INJ	
GR1: Tetracycline								
- Chlortetracycline	0			502,149		40,245		542,394.00
- Doxycycline	10,617	3,735	2,110					16,462.00
- Oxytetracycline	0				38,182		22,273	60,455.00
GR2: Penicillin								
Amoxycillin	72,990	13,695	5,802	334,766	25,200	41,922	8,575	502,950.00
Penicillin	0				4,200		3,053	7,253.00
Ampicillin	0						20,417	20,417.00
GR3: Cephalosporins								0.00
Ceftiofur (90%)	0				560			560.00
Cefquinome (10%) [2 companies]	0							0.00
GR4: Sulfonamide (1,4,16)								
- Sulfadiazine	0							0.00
- Sulfadimidine (Common use for AR in pig)	0			89,271				89,271.00
- (Sulfa)trimethoprim (for treatment)	0				784			784.00
GR5: Macrolide								
- Kitasamycin	1,660	1,297	550					3,507.00
- Tilmicosin	2,079			31,883		3,194		37,156.00
- Tylosin	25,480	7,470	1,899	57,389	33,600	9,582		135,420.00
- Tylvaosin (Avilosin)*	0							0

2013 Antibiotic Consumption (Unit : KgA)

Antimicrobial Drug	Poultry (kg)			Swine (kg)				Total (kgA)
	Broiler	Layer	Breeder	Fattening		Breeding		
	SP	SP	SP	FA	INJ	FA	INJ	
GR6: Aminoglycosides								
- Gentamycin	0				5,400			5,400.00
- Kanamycin	0				1,432			1,432.00
- Neomycin	1,261	986	418					2,665.00
- Spectinomycin	0							0
- Streptomycin	0				14,318		1,156	15,474.00
GR7: Fluoroquinolones								
- Halquinol	0			50,744				50,744.00
- Dano	0							0.00
- Enrofloxacin*	4,379	2,568					17,456	24,403.00
- Marbofloxacin	0						91	91.00
GR8: Other								
- Colistin	1,466	344	291	107,125				109,226.00
- Tiamulin	0			446,355	10,500	46,953		503,808.00
Linco+spec	1,051	822	696	16,069		2,415		21,053.00
Other	105	216	92			2,415	3,675	6,503.00
Total	121,088.00	31,133.00	11,858.00	1,635,751.00	134,176.00	146,726.00	76,696.00	2,157,428.00

Remark :

สูตรวิธีการคำนวณ (หน่วย mg/PCU) = Active Ingredient (AI) ; (mg, or kg)/Population correction unit (PCU) ; (kg of animal weight)

AI มาจากข้อมูลน้ำหนักยาต้านจุลชีพ (kg of active ingredient) ที่ใช้ในสัตว์ปศุสัตว์ต่อปี

PCU มาจากการประมาณน้ำหนักของสัตว์ปศุสัตว์ ในขณะที่ใช้ยา หรือเข้าโรงฆ่า = จำนวนประชากรสัตว์ X น้ำหนักเฉลี่ย (average weight at treatment)

Average weight at treatment ของสุกร (Swine)

สุกรขุน (Fattening) = 65 kg

สุกรพันธุ์ (Breeding) = 240 kg

Average weight at treatment ของไก่ (Poultry)

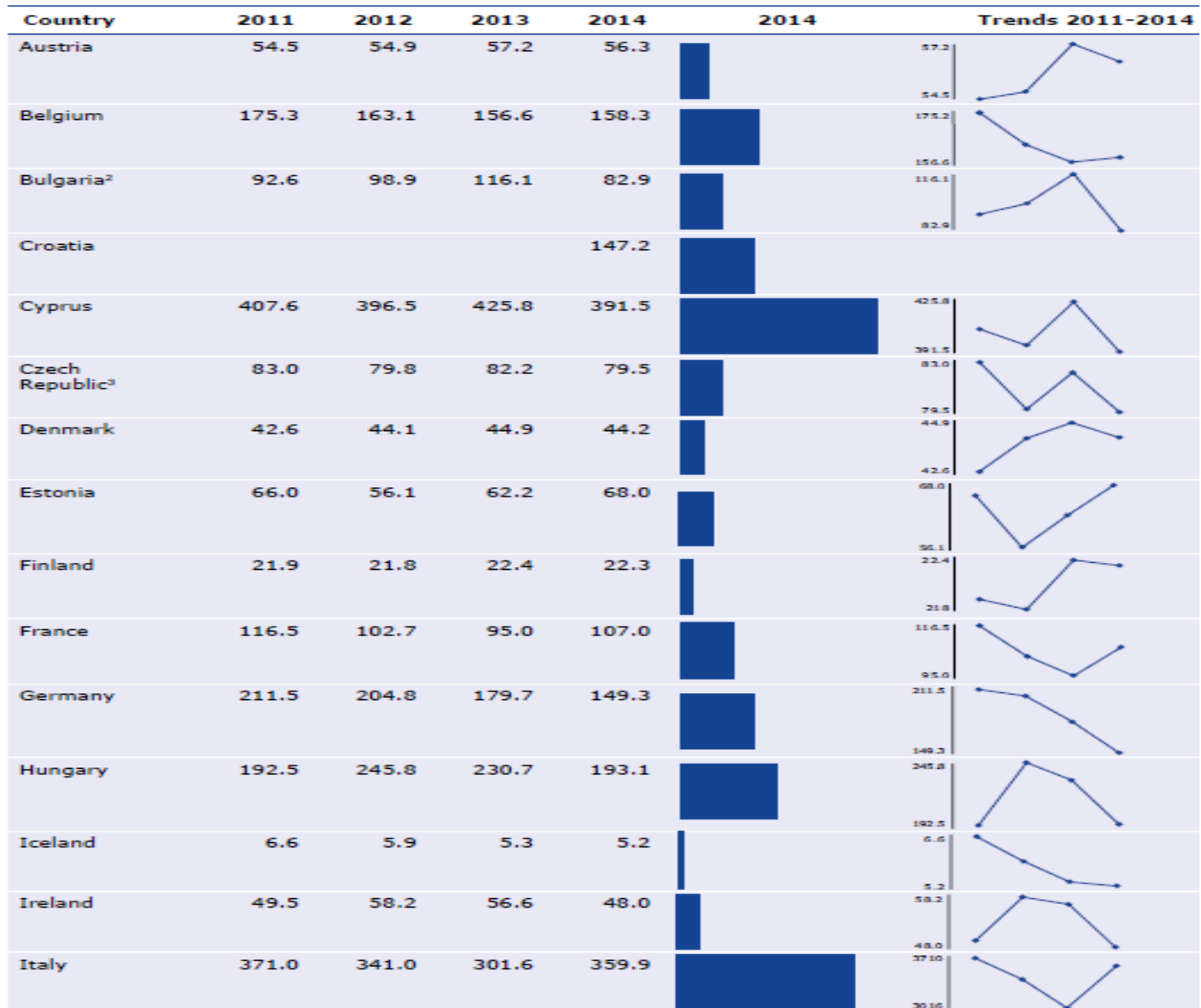
ไก่เนื้อ (Broiler) = 1 kg

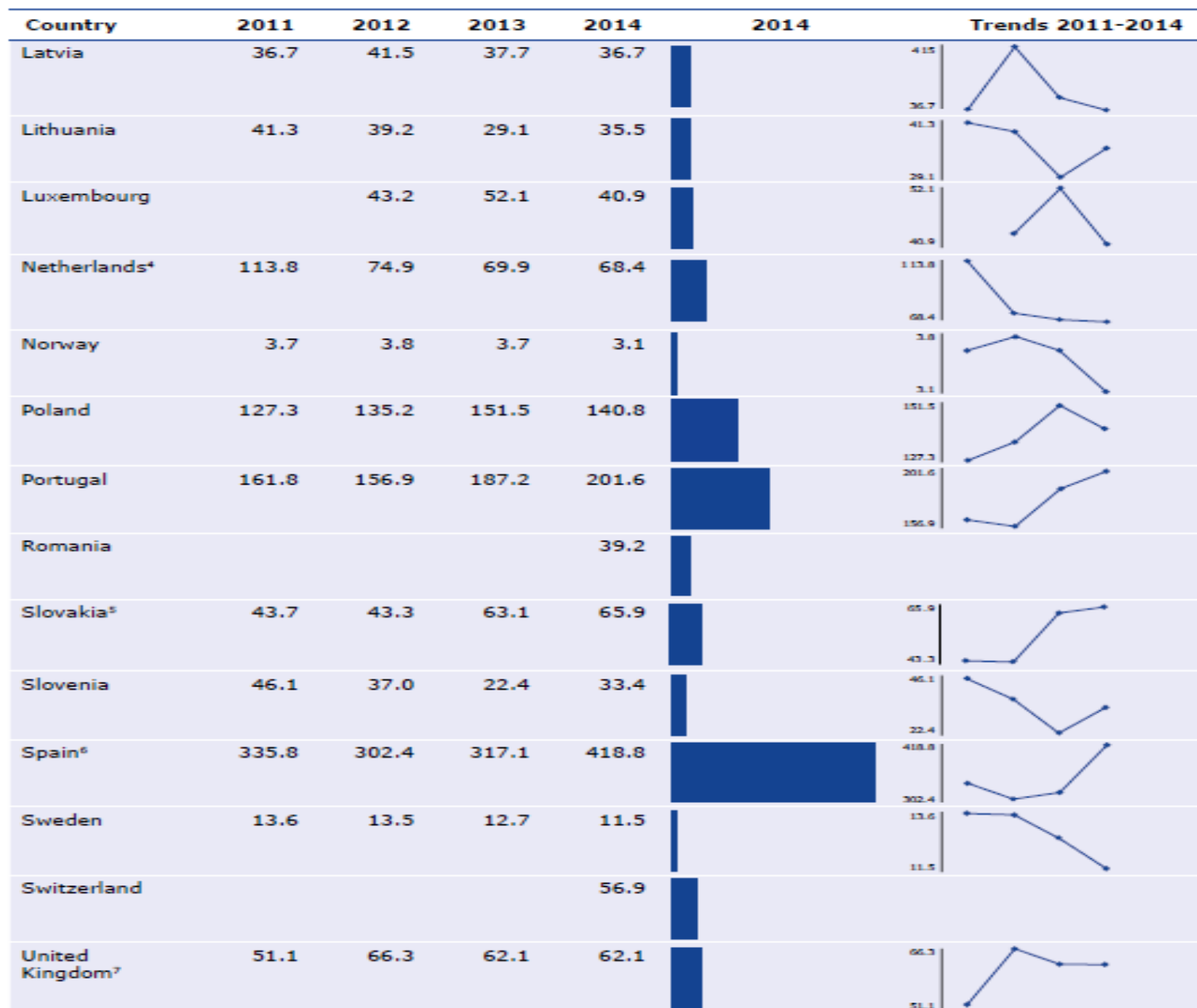
ไก่ไข่ (Layer) = 2 kg

ไก่แม่พันธุ์ (Breeder) = 1 kg

Reference from European Medicine Agency

3) ESVAC = PCU Data





Results

2017 Total Antibiotic Consumption by Species

Species	Total AI of antimicrobial (kg)	Total AI of antimicrobial (mg)	PCU = population*aw		PCU
			Population	AW	
Poultry					
Broiler (ไก่เนื้อ)	72,247.50	72,247,500,000	1,577,850,000	1.00	1,577,850,000
Layer (ไก่ไข่)	37,964.35	37,964,350,000	56,480,000	2.00	112,960,000
Breeder (ไก่พันธุ์)	12,232.88	12,232,880,000	15,770,000	1.00	15,770,000
Swine					
Fattening pig (สุกรขุน)	1,135,784.10	1,135,784,100,000	16,200,000	65.00	1,053,000,000
Breeding pig (สุกรพันธุ์)	142,052.11	142,052,110,000	1,100,000	240.00	264,000,000
Duck					
Laying duck (ไก่ไข่)	12,314.94	12,314,940,000	6,700,000	3.00	20,100,000
Meat duck (ไก่เนื้อ)	7,620.75	7,620,750,000	62,400,000	3.00	187,200,000
Cattle					
Beef (โคเนื้อ)	0.00	0	7,000,000	425.00	2,975,000,000
Dairy (โคนม)	3,942.00	3,942,000,000	510,000	425.00	216,750,000
Aquatic animal					
Fish (ปลา)	49,968.00	49,968,000,000	360,000,000	1.00	360,000,000
Shrimp (กุ้ง)	5,444.44	5,444,440,000	350,000,000	1.00	350,000,000
Total	1,479,571.07	1,479,571,070,000			7,132,630,000
				mg/PCU	207.44

Antibiotics Consumption in Thailand

- **Non P.O.M.(Prescribe on Medication)**
- **Low Compliance to Official Approval**
- **Easy to access**
- **Control/Prevention/Treatment**