

RE-ORIENTASI ARAH PENGEMBANGAN PAKAN: SUMBER ENERGI DAN PROTEIN

Ali Agus*

Keynote Speaker

Universitas Gadjah Mada, Yogyakarta

*Corresponding author email: aliagus9@gmail.com



UNIVERSITAS GADJAH MADA



**Re-orientasi arah
pengembangan pakan :
Sumber energi & protein**

Ali Agus
Faculty of Animal Science, UGM

Purwokerto, 7 Juli 2017

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Prof. Dr. Ir. Ali Agus, DAA., DEA,
Born : 9 ora, 22 Agustus 1956
Status : Married + 3 anak

Education :

01 (Dr.) Univ. of Animal Science UGM 1989
01 (DAA), ENSA Rennes France, 1985
02 (DEA), ENSA Rennes France, 1985
03 (Dr.) LIRSA Rennes France, 1986

Professional Experiences :

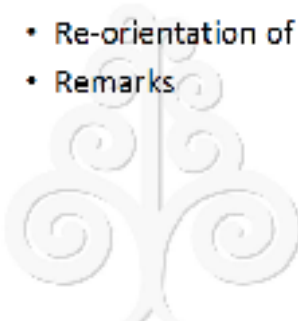
Lecturer - Faculty of Animal Science UGM 1980 - Now
Executive Director Small and Medium Enterprises Development Centre
(SMEDC) UGM, 2001-2008
General Secretary of South East Asia Network of Animal Science
(SEANAS) 2009 - Now
Consultant in Feedmill and Feedlot, Jakarta, 2000 - Now
Dean, Faculty of Animal Science UGM 2012-2016, 2019 - 2021
President Indonesian Society of Animal Science (IASA) 2014-2018
Chairman of AINI 2007 - 2011, 2011 - 2016
Chairman of Indonesian Society of Animal Science, 2014-Now

Residence : Farm Daya Farm 124
Jl. Kalijasa Km 8,5 Yogyakarta
Tel. : 0274-880477, HP. 08164298120



Agenda

- Introduction
- Global feed production and ingredients
- Re-orientation of feed development
- Remarks



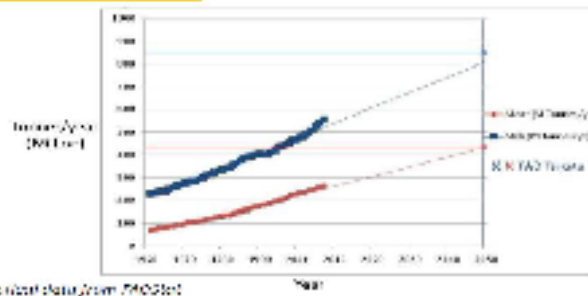
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INTRODUCTION

Predictions are in line with past growth

Global milk demand 2060: 841 Mto/year
Global meat demand 2060: 450 Mto/year

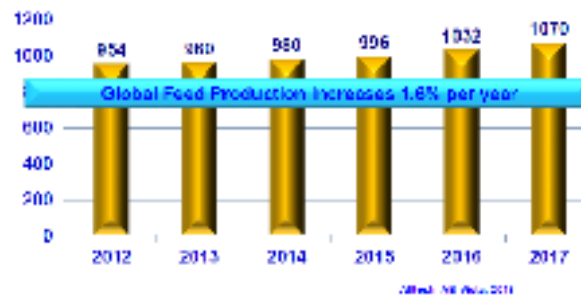


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GLOBAL FEED AND INGREDIENTS

Commercial Feed Production (mmT)



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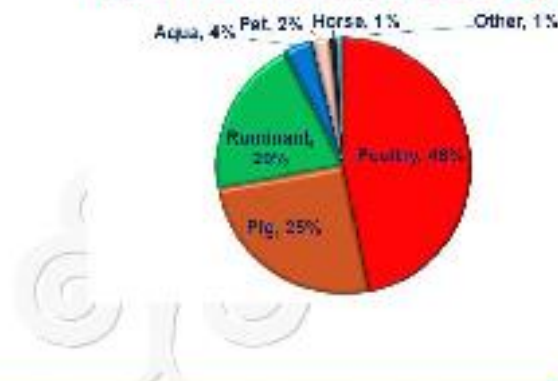
China is largest producer (mmT)



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Most commercial feed for poultry



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Feed Ingredients

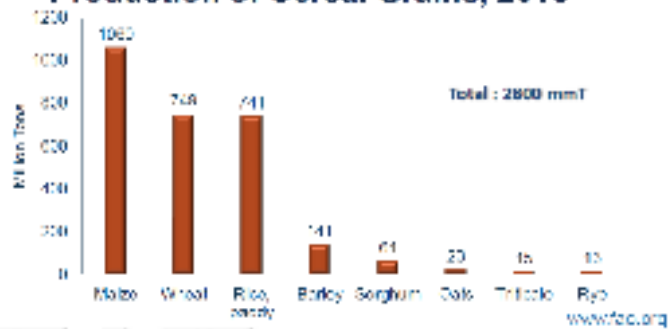


Sumber Energi : Diambil dari by product nya
Sumber Protein : Diambil dari by product nya

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Production of Cereal Grains, 2016

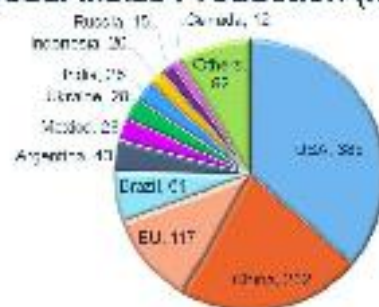


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Global Maize Production (mT), 2016

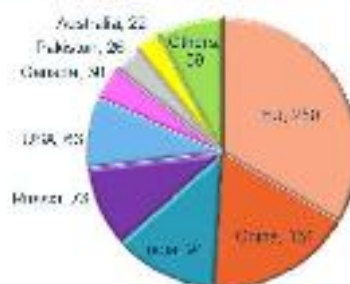


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Global Wheat Production (mT), 2016

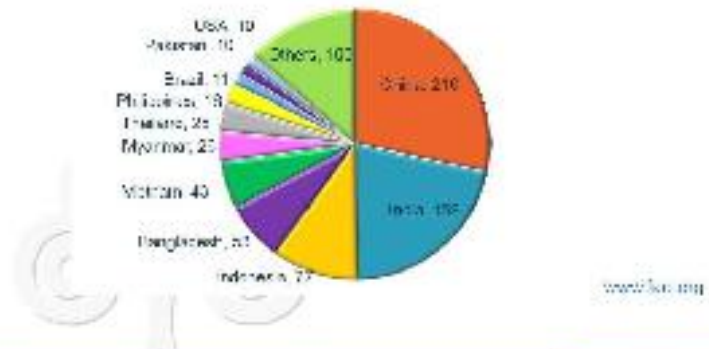


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Global Rice Production (mT), 2016



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Cereal Co-products

| Maize | Wheat | Sorghum |
|------------------|----------|---------|
| DDGS | DDGS | DDGS |
| Corn gluten feed | Middings | |
| Corn gluten meal | Shorts | |
| Hominy feed | Milium | |
| Corn germ meal | Red dog | |
| | Bran | |

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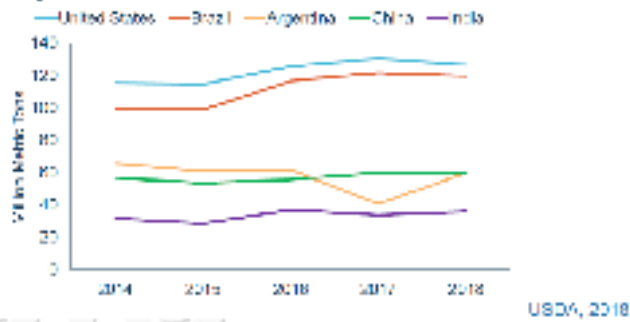
Global Oilseed Production, 2017 (Million mT per year)



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Major Oilseed Producers 2014-2018



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Soybean Production 2014-2018

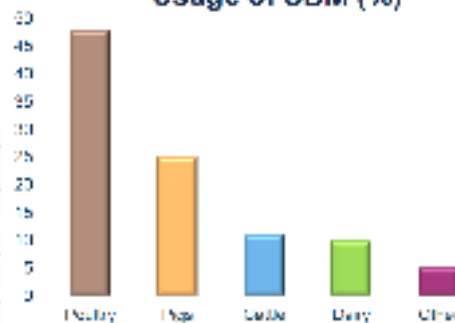


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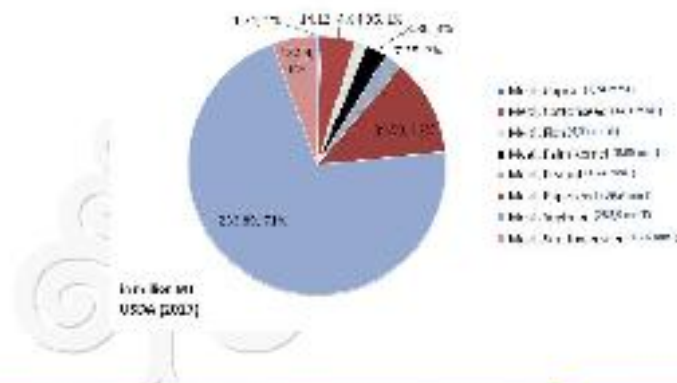
Usage of SBM (%)



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World protein meal consumption (2017)



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Processing of Oilseeds



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Facts & Challenges :

- Competition : food - feed – fuel ?
- Feed and feed ingredients shortage ?
- Feed quality, feed availability, feed cost ?

Position of Indonesia ?

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Consumers Want Their Meat "Free" Across the Globe!
And They Want Adjectives Added and Not Additives Added!

- Antibiotic-free
- Hormone-free
- Additive-free
- Campylobacter-free
- Salmonella-free
- E.coli-free
- GMO-free
- Free-range
- Gluten-free



antibiotic-free
chicken

GLUTEN-FREE
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Excessive utilization of Antibiotic and Growth Promoter (AGP) in animal farming stimulates bacterial resistance, and AGP residue in the animal products (meat, milk, egg) is harmful for the human health because bacteria resistance.

Data O'Neill Commission (2016): 700,000 people died because microbial resistance.

Food and Agriculture Organization (FAO), agriculture uses antibiotic 65,000 - 240,000 ton per year.

EU has banned the utilization of AGP in animal farming since 2006 (Indonesia start from 2018).

More consumer has aware on the issue of food quality and food safety.

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Without ANTIBIOTIC

- Food-borne zoonotic diseases
- Economic Impact

With ANTIBIOTIC

- Bioreistance
- Higher medical cost
- Increased mortality

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Re-orientation of feed & ingredients development programs



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Goal of animal nutrition



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Three Main Areas of Nutrition

- What we feed to the animals
 - Nutrient composition of ingredients
- What happens in the GI-tract
 - Digestion, absorption, excretion
- What happens in the rest of the body
 - metabolism, synthesis, deposition, and excretion of excesses



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1

Feed Technology

- 1. Increase Feed intake*
- 2. Improve Digestibility*
- 3. Improve Nutrients Absorption*
- 4. Balance nutrients*
- 5. Supplement & Additive*

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2

Local Feed Ingredients

- 1. Corn*
- 2. Copra & Palm kernel meal*
- 3. Protein leaf meal*
- 4. Herbal's feed additive*

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3

Multifunctional Feed Additive & Essential oils

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Livestock farming system based on the nature for healthier animal products and human health



Indonesia is rich in biodiversity, quality and rich in natural resources including herbs. Exploiting herbs and other plants for its naturally essential oil is much of interest as **feed additive** for livestock farming.

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Research Roadmap

(Ali Agus, 2016 - 2021)



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Multifunctional Feed Additive

Definition :

Feed additive consisting of several ingredients or active substances mixture, required essentially by the animal for better health and optimal production (trace mineral, vitamin, amino acid, probiotic, prebiotic, phytobiotic, essential fatty acids,...)

Role :

- Source of mineral and trace minerals
- Source of vitamins
- Antioxidant
- Immuno stimulator
- Balance microbe in the gut

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Remarks & Take home messages :

1. Animal production face the problem on the productivity, safety and sustainability
2. Challenges in feed quality, feed availability and feed cost (global and national)
3. Local feed ingredients need to be developed & promoted (corn, copra & palm kernel meal, protein leaf, herbs)
4. Development of multifunctional feed additive based on local resources has the opportunities and challenges, and it seems to be promising

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THANK YOU



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