Welcome to the International Conference
Poultry in the 21st Century
Avian Influenza and Beyond

Bangkok 5-7 November 2007
Poultry Production from a Human Nutritional Perspective
Poultry in the 21st Century

Avian Influenza and Beyond

Bangkok 5-7 November 2007

• Primarily for FOOD – eggs and meat
What will be covered?

- Nutritive value of eggs and poultry meat
- Consumption:
  - how much do we eat
  - regional differences
  - changing patterns of consumption
- Comparison with other animal products: red meat, pork and fish
- Food Security
- What does the future hold?
## Nutrient Content per 3oz

<table>
<thead>
<tr>
<th></th>
<th>Kcal</th>
<th></th>
<th>Kcal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken breast</td>
<td></td>
<td>Chicken drumstick</td>
<td></td>
</tr>
<tr>
<td>meat &amp; skin, fried w/batter</td>
<td>220</td>
<td>meat &amp; skin, fried w/batter</td>
<td>235</td>
</tr>
<tr>
<td>meat &amp; skin, roasted</td>
<td>165</td>
<td>meat &amp; skin, roasted</td>
<td>170</td>
</tr>
<tr>
<td>meat only, fried w/batter</td>
<td>160</td>
<td>meat only, fried w/batter</td>
<td>175</td>
</tr>
<tr>
<td>meat only, roasted/boiled</td>
<td>140</td>
<td>meat only, roasted/boiled</td>
<td>150</td>
</tr>
</tbody>
</table>
Nutritional Value

- Nutrient dense foods
- High protein content
- Good fatty acid profile
  - 33% saturated, 42% monounsaturated, 19% polyunsaturated
- Rich source of micro-nutrients:
  - Iron, Zinc,
- Vitamins: A, B₁₂ complex
Importance of good nutrition

• Malnutrition:
  – an estimated 854 million people chronically undernourished (chronic energy deficiency)
  – Some 3 billion plus suffer from micronutrient deficiencies (Vit A, Iron, Iodine)
  – poor child growth

• Food borne diseases – salmonella, contamination

• Importance of protein
  – Kenyan experience
  – (physical growth, cognitive development, immunity)
### Protein Content

<table>
<thead>
<tr>
<th>Animal</th>
<th>Protein Content/100g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>20 g</td>
</tr>
<tr>
<td>Pork</td>
<td>18 g</td>
</tr>
<tr>
<td>Fish (whitefish)</td>
<td>22 g</td>
</tr>
<tr>
<td>Egg (chicken)</td>
<td>12 g</td>
</tr>
<tr>
<td>Beef</td>
<td>20 g</td>
</tr>
</tbody>
</table>
Production of Poultry Meat and Eggs

- How much?
- Where is it produced?
- Who produces it?
• let’s look at consumption
Poultry in the 21st Century

Avian Influenza and Beyond

Bangkok 5-7 November 2007

Food consumption quantity (g/capita/day) | Chicken meat +

- World +
- World Developing Countries +
- World Developed Countries +

FAOSTAT | FAO Statistics Division 2007 | 31 October 2007

AGRICULTURE AND CONSUMER PROTECTION DEPARTMENT
ANIMAL PRODUCTION AND HEALTH DIVISION
Poultry in the 21st Century

Avian Influenza and Beyond

Bangkok 5-7 November 2007

Food consumption quantity (g/capita/day) | Chicken meat +

© FAOSTAT 2007

FAOSTAT © FAO Statistics Division 2007 | 31 October 2007

AGRICULTURE AND CONSUMER PROTECTION DEPARTMENT
ANIMAL PRODUCTION AND HEALTH DIVISION
• Let’s now look at the consumption of nutrients.
## Per capita consumption Kcal/day

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>25.73</td>
<td>43.17</td>
<td>22.19</td>
<td>31.69</td>
<td>211.99</td>
<td>296.04</td>
<td>12.14%</td>
<td>14.58%</td>
</tr>
<tr>
<td>Developing World*</td>
<td>14.1</td>
<td>30.74</td>
<td>14.88</td>
<td>27.97</td>
<td>137.53</td>
<td>223.39</td>
<td>10.25%</td>
<td>13.76%</td>
</tr>
<tr>
<td>Developed World**</td>
<td>67.64</td>
<td>97.31</td>
<td>48.51</td>
<td>47.88</td>
<td>480.31</td>
<td>467.86</td>
<td>14.08%</td>
<td>20.80%</td>
</tr>
<tr>
<td>Asia</td>
<td>11.81</td>
<td>25.08</td>
<td>16.98</td>
<td>34.42</td>
<td>143.37</td>
<td>262.98</td>
<td>8.24%</td>
<td>9.54%</td>
</tr>
<tr>
<td>China</td>
<td>9.46</td>
<td>32.08</td>
<td>24.12</td>
<td>72.89</td>
<td>252.16</td>
<td>525.35</td>
<td>3.75%</td>
<td>6.11%</td>
</tr>
<tr>
<td>India</td>
<td>1.59</td>
<td>6.71</td>
<td>4.1</td>
<td>6.4</td>
<td>23.85</td>
<td>28.66</td>
<td>6.67%</td>
<td>23.41%</td>
</tr>
<tr>
<td>Thailand</td>
<td>36.45</td>
<td>40.85</td>
<td>41.87</td>
<td>33.99</td>
<td>181.7</td>
<td>186.31</td>
<td>20.06%</td>
<td>21.93%</td>
</tr>
<tr>
<td>Latin America</td>
<td>44.3</td>
<td>101.15</td>
<td>26.33</td>
<td>29.16</td>
<td>263.58</td>
<td>348.76</td>
<td>16.81%</td>
<td>29.00%</td>
</tr>
<tr>
<td>Southern Africa</td>
<td>57.18</td>
<td>83.35</td>
<td>14.34</td>
<td>17.44</td>
<td>240.9</td>
<td>240.51</td>
<td>23.74%</td>
<td>34.66%</td>
</tr>
<tr>
<td>West Africa</td>
<td>7.86</td>
<td>8.98</td>
<td>7.69</td>
<td>7.27</td>
<td>60.37</td>
<td>63.49</td>
<td>13.02%</td>
<td>14.14%</td>
</tr>
<tr>
<td>United States</td>
<td>128.8</td>
<td>180.32</td>
<td>47.02</td>
<td>52.2</td>
<td>494.57</td>
<td>567.04</td>
<td>26.04%</td>
<td>31.80%</td>
</tr>
<tr>
<td>European Union</td>
<td>52.21</td>
<td>70.6</td>
<td>45.85</td>
<td>43.87</td>
<td>568.33</td>
<td>532.93</td>
<td>9.19%</td>
<td>13.25%</td>
</tr>
</tbody>
</table>

### Notes
- **Region** includes Asian, Latin American, Southern African, and Western African regions.
- **Share of Chicken meat** and **Share of eggs** indicate the percentage of per capita consumption compared to total meat products.
Protein consumption in developing countries

Years


g/day/capita

Chicken
Pig
Eggs
Bovine
Consumption developed countries

- Pig meat
- Eggs
- Bovine
- Chicken

Year:
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005

g/day/capita average:
- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
Who are producing these products

- Industrial, commercial or backyard?
- Little information
- Do the statistics underestimate informal production?
  – if 70% of the rural population in developing countries keep poultry – that’s a lot
Household Food Security

- Do the poorest producers gain nutritionally
  - birds and eggs are usually sold
- How is the income used
- Would increased productivity = greater consumption?
Winners and Losers

• Who benefits?
• Levels of malnourished?
• Growing children
• Obesity and associated risks
What does the future hold?

• Consumption?
  – population growth, economic development, excessive consumption declines?

• Impact of price increases?
  – feed costs, meeting health and hygiene standards, polluter pays?

• Impact of fear (HPAI etc)

• Potential for functional food products (e.g. omega-3 eggs)