

Flash Commentary: Antibiotics and Animal Health

Tracking our Thesis on Nutritional Feed Additives



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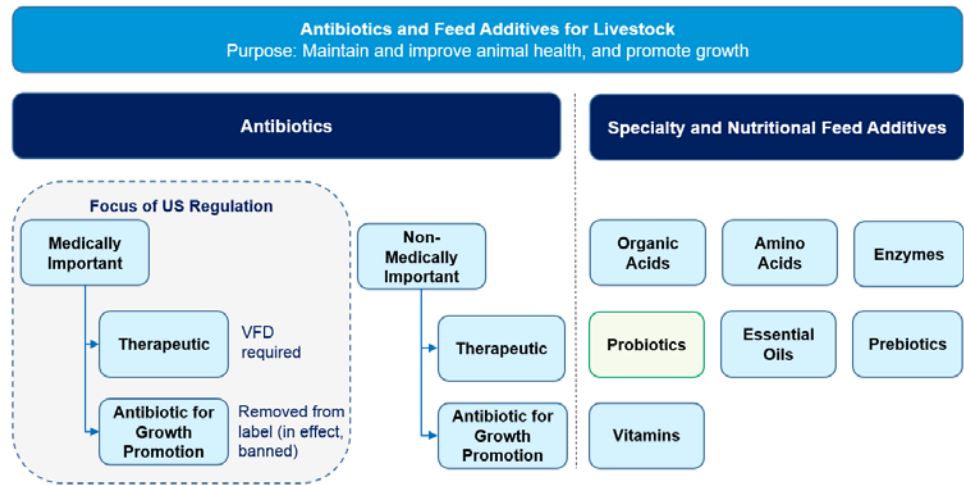
- **Interest in alternative nutritional feed additives is growing.** As we discussed in our October 5, 2015 report *Antibiotics and Animal Health: Value-Chain Implications in the US*, a confluence of regulatory action and heightened consumer awareness is exerting pressure on livestock producers to reassess their usage of antibiotics.
- **Our optimistic view on specialty and nutritional feed additives is supported by Adisseo and Novozymes' recent launch of a probiotics product.**
 - On January 25, 2016, Adisseo and Novozymes launched Alterion, their first probiotic for poultry. The product is meant to improve feed utilization and provide an alternative to antibiotic growth promoters on poultry farms. It will be released to the US market in addition to the Middle East and Southeast Asia.
 - Developed from a strain of *Bacillus subtilis*, Alterion can be added to feed to affect the composition of intestinal microbiota, providing growth and health benefits to animals when ingested. In addition, it also optimizes feed conversion by 2-2.5%.
 - Novozymes and Adisseo entered a partnership to develop probiotics in May 2015. Novozymes performs in-vitro testing and manages Alterion's development and production. Adisseo performs in-vivo testing and manages the marketing and sales of Alterion.
- **Rapid growth of probiotics market.** Our previous research indicated that the global feed additives market, which we estimate to be valued at approximately \$15 billion, could experience mid-single-digit growth annually through 2020. Adisseo and Novozymes have also adopted a favorable outlook on the market, estimating the probiotics market alone to be at "EUR 200-300 million and 8-10% annual growth."

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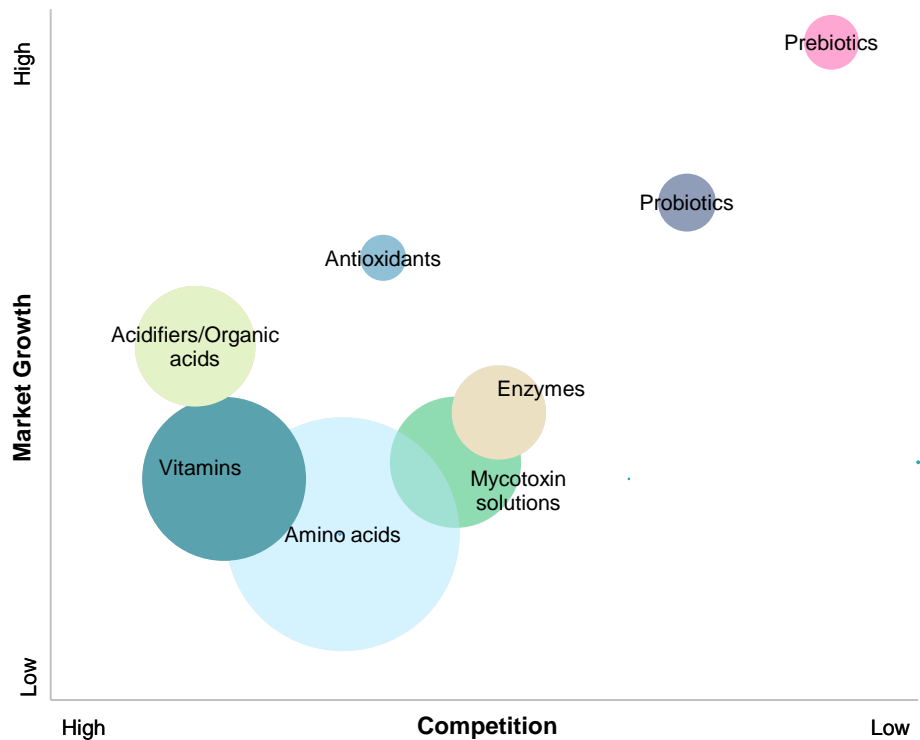
Figure 1: Antibiotics and feed additives



Source: Cornerstone Capital Group

Figure 2: Feed additives outlook

Probiotics are forecast to grow rapidly and face less competitive pressure



Bubble size denotes the current size of each market; market growth outlook is estimated through 2020.

Source: DSM, Novozymes, DuPont, Grandview Research, Transparency Market Research, Cornerstone Capital Group



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