

Harlan E. Clemmons,
President and Owner
HBC Holdings, LLC dba Sadex

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Food Irradiation

- Acceptance
- Now and Broadening the Perspective
- Limitations
- Proposals to Eliminate Limitations

Acceptance

- The perception: Consumers will not purchase and consume irradiated foods.
- The reality: Consumers purchase irradiated foods daily.
- A limited amount is purchased for their own consumption.
- The primary amount is purchased for their best friends, their pets and livestock.
- 10 to 15% of the consumers will always buy irradiated food products if given the choice.
- 10 to 15% of the consumers will never buy irradiated food products.
- 70 to 80% of the consumers will buy food products including irradiated food products providing the food products are safe, wholesome, and priced accordingly to their budgets.

Acceptance

- The food products which consumers purchase for their family's consumption are:
 - imported tropical fruit
 - ground beef
 - molluscan and crustacean shellfish
- Consumers also purchase several products containing ingredient formulas with irradiated dried seasonings and spices.
- Consumers willingly purchase irradiated food/feed products for their pets and livestock for their animals' safety.

Food Irradiation Now and Broadening the Perspective

- Foods approved by FDA for irradiation for human consumption trends
 - Irradiated ground beef has decreased over the years based on the perception that consumers will not purchase irradiated ground beef.
 - The market for phytosanitary irradiation of imported tropical fruits continues to grow.
 - Irradiation of fresh iceberg lettuce and fresh spinach due to *E. coli* O157:H7 never was accepted by the produce industry. The FDA never moved to approve other fresh leafy greens and vegetables for irradiation to eliminate pathogens such as the adulterant Shiga toxin-producing *E. coli* (**STEC**), *E. coli* O157:H7. All the while fresh romaine lettuce recalls due to the adulterant, *E. coli* O157:H7 continue to plague the fresh produce industry resulting in severe human illness that is preventable by irradiating the adulterated product.

Food Irradiation Now and Broadening the Perspective

- FDA foods approved for irradiation for human consumption
 - Irradiation of molluscan and crustacean shellfish to reduce foodborne illness due to *Vibrio* and other pathogenic organisms is a market growth opportunity.
 - Irradiation of dried spices and seasoning as ingredients.
 - Irradiation of animal and pet food, ingredients and treats.
 - Irradiation of meat and poultry to logarithmically reduce and minimize foodborne pathogens and adulterants such as: *E. coli* O157:H7, the “Big Six” non-O157 STECs, *Salmonella*, *Campylobacter* and *Listeria monocytogenes*.
 - Irradiation of raw poultry used for not-ready-to-eat (NRTE) poultry products when FSIS declares *Salmonella* an adulterant in NRTE poultry products.
 - Develop and have irradiation informational meetings in conjunction with the meat and poultry industry and their respective associations to identify needs, map a course which results in producing and supplying value-added, safe, wholesome, and high-quality FDA approved irradiated food products.

Limitations

- Current FDA food approvals for irradiation for human consumption are limited, restrictive, and have long lead times for approval.
- Additional new FDA food irradiation product approvals are non-existent and minimize opportunities to grow the irradiated food market.
- FDA has not approved most packaging materials which are used in conjunction with antioxidants that are used by the produce industry to package fresh iceberg lettuce and fresh spinach.
- The majority consensus of the food manufacturing, retail and wholesale grocery industries and their associations is a self-fulfilling prophecy, the consumer will not choose or purchase an FDA approved irradiated food product.
- Meat, poultry, produce and the food industry and their associations in general have the perception the consumer will not purchase FDA approved irradiated food products. Their view and/or stance, why manufacture and produce FDA approved irradiated food products to be sold in commerce, the consumer will not purchase FDA approved irradiated food products.

Limitations

- Retail and wholesale grocery industry and their associations have the general perception the consumer will not purchase an FDA approved irradiated food product. Again, why offer FDA approved irradiated food products for sale. By doing so, it would provide the consumer an option to make a choice of purchasing the value-added and safe FDA approved irradiated food products at a reasonable and complementary price compared to the non-irradiated food products.
- The food manufacturing industry including the meat and poultry industry is primarily unwilling to reconfigure the packaging and product configuration for products being irradiated by electron beam to achieve a tight dose uniformity ratio (DUR) and a proper dose distribution throughout the product to achieve a higher standard product.
- Food manufacturing industry including the meat and poultry industry and their associations for the most part are unwilling to establish a testing protocol to identify and establish the minimum irradiation dose required to be applied to the product(s) which will achieve the logarithmic reduction of the pathogen(s) or adulterant(s) of interest and their purpose for irradiation which result in safe, value-added and wholesome products the consumer will be willing to purchase at a reasonable and complementary price compared to the non-irradiated food products.

Proposals to Eliminate Limitations

- Form a selected group of individuals including the meat, poultry, produce, food industry, retail and wholesale grocery industry and their associations and the ionizing irradiation industry to facilitate a course of action which promotes the use of ionizing technology and irradiation of FDA approved irradiated food products.
 - Work with select government agencies FDA, USDA/FSIS/APHIS/AMS, CDC, Surgeon General, etc., to develop Public Service Announcements (PSAs) which provide the consumer information referencing FDA approved irradiated foods are safe to eat,
 - Identify specific high-risk FDA approved irradiated food products to be irradiated as a food safety intervention, example: raw poultry used in NRTE poultry products when FSIS declares *Salmonella* an adulterant,
 - Identify and establish the minimum irradiation dose to be applied to the approved food products which will achieve the required logarithmic reduction resulting in a safe and consumable food product and prevents the risk of overdosing the product,
 - Identify how to reasonably and complementary price the value-added irradiated food products when compared to the similar non-irradiated food product's pricing,
 - Supply approved irradiated foods for commerce at a reasonable and complementary price which provides the consumer a choice: the value-added FDA approved irradiated food products or the traditional non-irradiated food products,

Proposals to Eliminate Limitations

- Identify standard packaging and product configuration for each the various products which generates a proper dose uniformity ratio (DUR) and proper dose distribution that can be used for each individual and unique sector of the meat, poultry, produce and the food manufacturing and processing industry, example: raw poultry used in NRTE poultry products when FSIS declares *Salmonella* an adulterant,
- Identify FDA approved packaging materials and packaging atmospheres based on products to be irradiated,
- Identify high-risk food products not approved for irradiation that will benefit by being irradiated for which a petition will be submitted requesting FDA's approval for irradiation of the high-risk food products to be irradiated as a food for human consumption,
- Identify packaging materials not approved for irradiation by FDA when used in conjunction with food products approved for irradiation, being irradiated and/ petitioned to be irradiated,
- Submit petitions to FDA for approval of the identified unapproved food packaging materials when used or to be used in conjunction with food products approved and new or existing petitions submitted to FDA requesting FDA's approval for irradiation of the food product to be irradiated as a food for human consumption.

Questions and Discussion

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Thank You

- A special thanks to IFIS for the opportunity to speak today during the symposium
- Thanks to each of you for your attentions during the presentation
- Should you have any inquiries regarding food irradiation please feel free to contact me.



Harlan E. Clemmons,
President and Owner
HBC Holdings, LLC dba
Sadex

2650 Murray Street
Sioux City, IA 51111
712-252-3505

hclemmons@sadexsc.com

www.sadexcorp.com