

The Voter

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MARCH 2014

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Is THAT Safe to Eat?

by Mary Ehlers

Good question. How do you know? With all the news about antimicrobial resistance, recalls for E. coli, kids getting sick from undercooked hamburgers, warnings not to wash raw chicken, and the Mad Cow disease scare — what's a person to do? And it doesn't stop there; we may soon be asking does that farm-raised salmon contain GMOs and if so do I care?

Everybody has a story about food safety. Unfortunately, these stories can have tragic endings. Food safety today goes way beyond what many of us learned about safe handling techniques in Home Economics. The Unit material in this issue covers Food Safety and Food Labeling with questions taken from the LWV National study on Agriculture. It explores how our food safety programs work, or don't work, and what is covered, or should be covered, by our food labeling processes. You will learn about how large farms consolidate animals as a way to reduce costs. On the surface this sounds like a good thing, but the unintended consequences need to be understood. How does their use of pharmaceuticals in animal production to treat and control disease affect us as the end user? What happens to the huge amount of animal waste produced by these consolidated operations? The material also explores our food inspection systems. Do we have enough folks inspecting the food before it hits the grocery stores? Do the methods used actually keep our food safe? What happens when there is a food safety scare?

What's the next "new" thing in food safety?

Have you heard about nanotechnology in food? These are tiny, really tiny particles that can pass through barriers that keep other things out. Today these particles are found in food because they can transfer from the packaging into the food inside. You will learn how manufacturers plan to use this technology in the future and who is paying attention to this issue. And the discussion would not be complete without a nod to GMOs and the debate about safety and labeling.

Food labeling has been providing consumers with nutritional information for 20+ years now. Who among us hasn't spent time reading the labels at the grocery store? Some of you were checking for trans-fats or calories, but others were likely looking for potentially life-threatening ingredients like peanuts. We have come to rely on these food labels. So who decides what is "important enough" to label? How do "they" decide whether to put the information on the front or the back of the packaging? In addition to labeling the actual ingredients and nutritional value, recent labeling issues surround the matter of "qualified health claims". Do the products actually perform as the labeling states? Who verifies this and what do the claims really mean?

continued on page 6

March Forum: Food Safety
Thursday, March 6
7:30 p.m.

Contents

Connecting with the Leadership	3
Calendar	4
Forum Schedule.....	5
Board Briefs.....	5
Committees.....	7
King County Connects	
Announcements.....	8
League in Action	9
Membership News	
New Members	10
Features	
Transportation Committee Report	11
Education Committee Report.....	12
Book Review	13
Program	
Focus on Food Safety and Labeling	14
Unit Discussion Questions	15
Unit Meetings.....	37
Board and Committee Contacts	39

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Connecting with the Leadership

What does women's history have to do with Frankenstein or with our discussion topic this month - agriculture and food safety? More than you might think. The story of Frankenstein was written by Mary Shelley, the second wife of the poet Percy Bysshe Shelley. Percy Shelley was still married when he and seventeen year old Mary ran off to tour Europe with her stepsister Jane Clairmont, Lord Byron, and Byron's physician John Polidori. The inspiration for *Frankenstein* came from an evening spent telling ghost stories. An aside - Polidori wrote one of the first vampire stories *The Vampyre*. Frankenstein was made in a laboratory by humans; Frankenfoods is a term used to describe foods made with genetically modified organisms, i.e., made in a laboratory by humans.

Mary Shelley was the daughter of Mary Wollstonecraft, considered to be the first major feminist, certainly the first major author in the field of women's rights. Her book *Vindication of the Rights of Women*, published in 1792, was the first ethical argument for the emancipation of women. Predictably it got mixed reviews and its author was the subject of much condemnation and vitriol. She was described as "a hyena in petticoats," "a philosophizing serpent," and a shameless wanton. Mary Wollstonecraft made a living as a teacher and writer at a time when women were allowed very little independence. Unfortunately she died at the age of 38 soon after the birth of her daughter from complications of childbirth - an all too common fate of women throughout the centuries.

So, you say - where does food safety come in with women's history? Our human ancestors started out as hunter/gatherer societies. The gatherers were the women and children. They were the ones putting food on the table on a daily basis. The men hunted for larger animals and scavenged prey killed by stronger and larger predators. When they brought home a deer, cassowary, or wildebeest, there was joy and feast-

ing, and nobody went to bed hungry, but that didn't happen often. It was women collecting nuts, berries, and roots or trapping small animals that were the dependable source of food. Women fed the tribe.

In coastal areas such as the Pacific Northwest women would collect shellfish, mollusks, and algae from the shore. The Duwamish have a saying "when the tide is out the table is set" - how true. Gathering wild foods today and in the past means you need a deep knowledge of plants - where to find them; when to harvest; which ones were toxic; and which were good to eat. Women were the repository of that knowledge. Women were the ones who figured out how to cook foods to make them palatable and safe. For the Salish peoples of the Pacific Northwest camas bulbs were the major carbohydrate source. But the starch in camas is a form that we cannot readily digest - it has to be broken down to a simpler form. The Salish women baked camas bulbs in the fire for 24 hours, then formed them into cakes which were dried for winter storage. Even then there were digestive problems. The explorer David Douglas commented on being driven from the tent by the excessive flatulence after eating camas. No wonder the Salish so readily embraced potatoes when the Europeans came.

There was an additional problem with camas. A closely related plant, the death camas, grows in the same areas as camas, and the bulb is deadly when eaten. The two plants can only be distinguished when flowering, but the bulbs are harvested long after the flowers are gone. Again it was the women who made sure death camas was not harvested by mistake. Food safety was always a woman's job.

A question to ponder - do women only have history for one month in the year?

Carol Burton, Program Co-Chair

March

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 Board Meeting 9:00 a.m.
2	3 Int'l Relations Committee 12:45 p.m. Voter Deadline	4	5	6 Forum: Is THAT Safe to Eat? 7:30 p.m.	7	8
9	10	11	12	13	14	15
16	17	18 Transportation Committee 10:00 a.m.	19	20	21	22 Econ. & Tax. Committee 11:30 a.m.
23	24	25	26	27 Education Committee 10:00 a.m.	28	29
30	31	1	2	3 Forum: Living Wage v. Minimum Wage 7:30 p.m.	4	5 Board Meeting 9:00 a.m.

Units meet during shaded period

MARCH

Board Meeting
Saturday, March 1
9:00 a.m.
League Office

International Relations
Committee
Monday, March 3
12:45-2:45 p.m.
League Office

The Voter Deadline
Monday, March 3

Forum: Is That Safe to Eat?
Thursday, March 6
7:30 p.m.
Seattle First Baptist Church

Transportation Committee
Tuesday, March 18
10:00 a.m.
League Office

Economics & Taxation
Committee
Saturday, March 22
11:30 a.m.
909 E Newton #D-9, Seattle

Education Committee
Thursday, March 27
10:00 a.m.
League Office

APRIL

Forum: Living Wage v. Minimum
Wage
Thursday, April 3
7:30 p.m.
Seattle First Baptist Church

Board Meeting
Saturday, April 5
9:00 a.m.
League Office

The Voter Deadline
Monday, April 7

Forum Schedule

<p>February 6 - Gun Safety</p> <p>March 6 - Nat'l Agriculture Update</p> <p>April 3 - Living Wage</p> <p>May 15 - No Forum/Annual Meeting</p> <p>Oct 2 - Ballot Measures</p>

The League of Women Voters of Seattle-King County (LWVS-KC) presents a public forum most months between September and May, generally on the first Thursday of the month at 7:30 p.m. Most forums are held at the Seattle First Baptist Church, but occasionally they are scheduled in other locations and times. The tentative schedule of forums for 2014 appears at left; check *The Voter* each month or the LWVS-KC website, seattlelwv.org, for up-to-date information.

Planning is underway for two special forums - one to look at the proposed county funding option for transportation needs, including METRO; a second to examine the proposed park district in Seattle. They are tentatively scheduled for March and June, respectively. Also on the calendar this spring is our May annual meeting which has been set for Thursday, May 18, and a special breakfast fundraising event for May 28. More details are coming soon.

Board Briefs by Amanda Clark, Secretary

The League of Women Voters of Seattle-King County Board met on Saturday, February 1, 2013. This is a summary of their work.

Treasurer's Report. Thanks in large part to donations for TRY, the budget is where it should be. Dues and Leadership Circle pledges are still slow in coming in, but it is hoped they will pick up in the spring. Because the TRY is online this year, we expect that fewer people will ask for a hard copy. We are saving some money by printing fewer, but still can do an extra printing if necessary. Treasurer Cindy Piennett was authorized to explore the possibility of having both of our bank accounts at the same bank. (Currently they are at two different banks.)

Committee Reports. Committees have been getting ready for what promises to be a busy spring. Program Committee planning for the March forum on food safety is well under way, as it is for the April forum on the living wage. The *Action Committee* would like to hold two

additional forums, one on transportation in conjunction with the King Co. levy proposed for the April ballot, and possibly held at another location in the County, and one on the Seattle parks levy that will probably be on the August ballot. The *Membership Committee* finalized the "About You" form to send to new and renewing members. It is also focusing on recruiting and engaging new members, especially on the East Side. Our current membership is at 622, the largest local unit in the U.S. The *Voter Services Committee* is identifying volunteers for the Speakers Bureau and voter registration, and plans to have training sessions in March.

Fundraising. Letters will go out soon to all elected officials urging them to donate to TRY. It will be interesting to see the results of this experiment. Also the Board gave final approval to

Board Briefs continued:

proceed with the fundraising breakfast in May. Everyone agrees that executing this successfully is a challenge but an exciting one. And one for which there's a need for lots of volunteers. There will be committees for planning, getting in touch with potential guests, room decoration, registration, and more. Please consider volunteering. We will have a list soon of the various tasks as well as times the committee will meet. Please be on the alert for the call to help. This is a great opportunity to work with and meet some interesting people. If you would like to volunteer, please get in touch with Julie Anne Kempf or call the office.

Cover Article continued:

There are a multitude of agencies working together to try and ensure food safety. We've got the USDA, EPA, CDC, NIH, ATF, AMS, and the FDA. Read this month's feature article to find out who they are and what they do and discover the complex issues facing these agencies. You will learn some answers to lots of questions!

Diversity Policy

The League of Women Voters of Seattle-King County (LWVS-KC), in both its values and practices, affirms its beliefs and commitment to diversity and pluralism, which means there shall be no barriers to participation in any activity of the League on the basis of gender, race, creed, age, sexual orientation, national origin or disability.

LWVS-KC recognizes that diverse perspectives are important and necessary for responsible and representative decision-making. LWVS-KC subscribes to the belief that diversity and pluralism are fundamental to the values it upholds and that this inclusiveness enhances the organization's ability to respond more effectively to changing conditions and needs.

LWVS-KC affirms its commitment to reflecting the diversity of Americans in its membership, board, staff and programs.

Committees

Meetings can sometimes be subject to last minute changes. Call the LWVS-KC office at 206-329-4848 to confirm.

Economics and Taxation Committee

DATE: Saturday, March 22

TIME: 11:30 a.m. ***Special Time**

PLACE: 909 E. Newton #D-9, Seattle

Anyone interested in attending please call Jeannette Johnson, 206-724-3392.

Education Committee

DATE: Thursday, March 27

TIME: 10:00 a.m.

LOCATION: League Office

If you have questions or comments, please leave a message for committee chair Joanna Cullen, at info@seattlelwv.org or 206-329-4848.

International Relations Committee

DATE: March 3

TIME: 12:45 – 2:45 p.m.

PLACE: League Office

Transportation Committee

DATE: Tuesday, March 18

TIME: 10:00 a.m. – 12:00 p.m.

PLACE: League Office

Subject: The proposed King County Transportation district Initiative

Speaker: TBA

Visitors are always welcome.

We encourage participation by all interested members in our committees. It's a great opportunity to meet and talk to community leaders, stakeholder organizations, and experts where you can have direct input on local issues that affect you.

Don't see a committee that covers your issue? Call the office and let us know. Sometimes people are working in a more informal manner without regularly scheduled meetings. If so, we may be able to help connect you with them or help you start your own.



Mission Statement

The League of Women Voters of Seattle-King County, a nonpartisan political organization, encourages informed and active participation in government, works to increase understanding of major public policy issues and influences public policy through education and advocacy.

King County Connects — Announcements

YOU ARE INVITED!

March 3, 7:00 p.m.
Third Place Books at Third Place Commons
17171 Bothell Way NE
Lake Forest Park

Program Title: Our Kids Are Not For Sale
The North King County League of Women Voters is sponsoring a presentation by the Snohomish League of Women Voters including a brief film documenting trafficking of kids in the United States and a panel discussion describing victims and how they are trapped, law enforcement efforts, Washington state laws and legislative activity, and what you can do.
Parking is available.

LWV/S-KC TRANSPORTATION
FUNDING FORUM
March 22, 12:00 – 2:30 p.m.

Check Constant Contact email alerts for more information.

WATERFRONT WEEK

Join Waterfront Seattle March 5-9 to celebrate all things waterfront. This series of events will reveal the newest design progress, share an insider's look at how to build a seawall, and get us all talking about opportunities for art, design, and play on the waterfront and beyond. We hope you can join us.

Waterfront 2020

Wednesday, March 5

5:30-8:30 p.m.

Seattle Center, Fisher Pavilion

Presentation on the latest waterfront design with James Corner. Plus great food and fun activities!

Art, Design & Play: Liane Lefaiivre

Friday, March 7

6-8 p.m.

Seattle Art Museum, Plestcheeff Auditorium
Vienna-based architectural historian Liane Lefaiivre will discuss play as a design tool for architects, city planners, and public artists.

Art, Design & Play: Ideas From Around The World

Saturday, March 8

Seattle City Hall, Bertha Knight Landes Room
10 a.m. - 4 p.m.

Visionary designers, artists, and historians from across the globe will present and discuss the past, present, and future of play in art and design.

Field Day

Sunday, March 9

Meet us at the Pike Street Hill Climb across the street from the Seattle Aquarium

10 a.m. - 4 p.m.

Get an insider's look at how to build a seawall, participate in family-friendly activities, and be part of our time capsule!

See you at Waterfront Week! For more information, go to waterfrontseattle.org. Questions or comments? 206-499-8040.

League in Action

Action in Olympia

The 16 members of the state lobby team have been tracking a slew of bills on issues from agriculture to education, health care to water resources, and more. Each week the state office sends out an email legislative newsletter letting you know what happened the previous week and what action is needed in the coming week. Please help support the work of the lobby team by reading the weekly email and responding to at least one of the calls for action. It only takes a few minutes to skim and see if maybe one of your representatives is key to the success of our efforts.

Not getting the email or want to learn more about the legislative priorities for the League this year? Check out www.lwvwa.org or call the office at 206-622-8961.

Waterfront Update by Nancy Bagley

Good Waterfront News! The Corps of Engineers has cancelled the Pier 57 expansion application at the request of the owners.

The Griffiths, owners of Pier 57, had planned an “expansion” of the pier northward, ostensibly to “provide additional access area” for the public to reach the general public viewing area at the end of Pier 57 that their State lease required them to provide. The lease also required them to allow 24-hour access on both sides of the pier. But it was discovered that the Pier 57 owners were themselves blocking public access to the view area by their Wheel operations and by locked gates!

The Griffiths also wanted the expansion to provide moorage for Tall Ships on the north side of the pier, which would extend into open waters in front of Waterfront Park, seriously blocking Park views.

Their application was strenuously opposed by the City Waterfront Committee, the Parks Department, the League of Women Voters, and some tribes. On November 8, LWVS-KC President Ellen Barton sent the Corps a strong letter opposing the project.

We won!

National Legislative Priorities for 2014

The LWVUS Board established the following as legislative priorities for 2014: Money in Politics and Voting Rights. In addition, the following were included as a second tier of focus for 2014: Affordable Care Act, Reproductive Choice, Immigration, and the Environment.

Other issues, third tier (watch) such as Fiscal Policy/Social and Economic Justice and Gun Safety, may be acted on as opportunities arise for League action, if they do not interfere with action on an LWVUS priority, and it appears the LWVUS can make an impact.

The Board considered many issues and the responses from League members suggesting Legislative Priorities. The decisions were based on what issues are likely to come before the second session of the 113th Congress, the opportunities to make an impact, program decisions made by members at the last Convention, member interest, and resources available to manage these priorities effectively. The Board reviews these priorities throughout the year, making changes if necessary.

Getting Connected Membership News

NEW MEMBERS by Carol Goldenberg

Kathy and Clarence Pugh transferred their membership in January from LWV Marion-Polk County when they moved to Seattle from Salem, Oregon, where they lived for 35 years. During the last 10 years, Kathy served as local Board secretary and membership chair and participated in several studies, the book club, and lobbying.

They are retired teachers who have been most active in Oregonians for Alternatives to the Death Penalty. After leaving teaching, Kathy in high school mathematics and Clarence in secondary choral music, Kathy worked for the state as a computer analyst and Clarence for the transit district in marketing and planning. They met in choir at Willamette University. Clarence continues to sing in the Salem Senate-Aires barbershop chorus. Clarence does long distance bicycling; Kathy loves to walk and completed a half-marathon last May.

Barbara Dietrich had been a member of LWV and inadvertently let her membership lapse. Better able to attend meetings now, she has rejoined and is happily attending the North King County unit which meets at Third Place Books in Lake Forest Park. Barbara finds the League's nonpartisan policy especially valuable.

Barbara taught fourth grade in Massachusetts and became a music specialist in the Bothell School District before leaving the classroom to raise a family. Since then she has given individual piano lessons.

Ann Macfarlane was a Foreign Service Officer with the U.S. Department of State. Having majored in Russian, she hoped to go to the U.S.S.R., but at that time new officers were not posted there until they had experience elsewhere. Ann had Pakistani friends with whom she had

studied in England so she volunteered to go to Lahore, Pakistan. There was not much competition for that post but, because Bangladesh had just become independent, it turned out to be an interesting assignment.

On returning to Washington D.C., Ann was in training for an assignment to Moscow when another Foreign Service Officer made her a better offer. Ann married Lew Macfarlane and they started a family. It is possible to have two family members employed in the Service but with two children in tow it was difficult. She resigned and accompanied her husband on tours in Africa and Nepal - now with a third child in the family.

When her husband retired they came back to Seattle, her husband's childhood hometown. Ann was active with school reform in the Shoreline school district. She worked as a translator, becoming president of the American Translators Association. In trying to explain to board members how Robert's Rules of Order works, she thought of using dinosaurs to show how motions are processed. This concept eventually led her to found a company, Jurassic Parliament. Ann works with cities and other civic bodies with the goal of helping them have effective meetings. Ann has written a book available from Amazon, *Mastering Council Meetings*, and is working on the next one, *Mastering Board Meetings*. Ann is passionately committed to a democratic and informed citizenry and is very happy to have become a member of the League of Women Voters of Seattle/King County.

Editor's Note: Carol loves chatting with the new members to help them connect to the many activities that are a part of League. Even more, she loves to hear the wonderful and unique stories our members have. If you're shy and don't want your bio published, that's OK, if we somehow missed you, give us a call and Carol will be in touch!

Features

TRANSPORTATION COMMITTEE

by Janet Winans, Chair

We began our January Transportation Committee meeting knowing that the legislature still seems unlikely to produce the transportation budget we've been waiting for since their 2013 session. Dow Constantine had just announced that he was going to use his county executive authority to propose a ballot measure to King County citizens that will provide critical funding to Metro Transit and deal with the crumbling infrastructure needs for roads and bridges in the county. There will be a county-wide vote on the initiative in April. Members attending that day agreed to form a committee to prepare to hold an informational forum about the initiative. We plan to find a venue outside of Seattle that is easily accessible by transit and to organize a publicity effort that will reach out to many constituencies like transit users, PTAs, college students, and others who don't usually attend our forums. We intend to hold the forum in late February or early March. Although our planning, and, perhaps, the forum will have happened before you read this *Voter* article, our April *Voter* article will describe our success.

In December we had changed our committee "hats" to become the Seattle Waterfront Park committee in order to gather information about progress and issues dealing with the Waterfront Park and the Seattle Parks Department. Our December meeting speaker Nathan Torgelson discussed some of the issues for separate funding for the Waterfront, including a Waterfront Park Foundation. After meeting with Mr. Torgelson, we realized that we had more questions about funding for Seattle Parks Department projects and he referred us to Susan Golub, Seattle Parks Department director of the Seattle Parks and Recreation Parks Legacy Plan.

At our January meeting, Ms. Golub focused on the current system of parks in the city. In 2009, Parks and Recreation began a strategic planning

process resulting in the Strategic Action Plan, a five-year 'to do' list which provides direction for stewardship of the park system. Funding for the project has come from the Seattle Parks' operating budget. Much of the work has been done by a Citizens Advisory Committee. Many of the Strategic Action Plan tasks have been accomplished, but others have been delayed due to the economic recession. Five teams continue to work on implementation. The 2014 Parks Legacy Plan will be an update of the 2009 Plan, with a focus on data that has been collected and analyzed by the Citizens committee. One of their most critical tasks has been to examine how to allocate existing funds, seeking a balance among keeping facilities open, maintenance, acquisition of new land, and development of new facilities. They have discovered, of course, that there is not enough money in the city budget to protect the current legacy of remarkable parks throughout the city. Building on the Legacy Plan and working diligently since June 2013, the Advisory Committee and the Parks Department have created a funding package that addresses the park and recreation needs of all people in Seattle into the future. The Committee's goal will be to make recommendations to the Mayor and City Council on a parks funding ballot measure that would go before the public for a vote in August 2014.

According to Ms Golub, the Waterfront Park is both a city park and a separate entity. The city will be responsible for all of the services there that they perform in all other city parks. However, the responsibilities of maintenance and supervision in such a unique facility will be very significant, such as the increased need for ranger supervision.

Information about the needs of the Waterfront Park will come from another speaker at another meeting. We also plan to form another committee to set up another informational forum on the parks funding ballot measure. Please let us know if you'd like to serve on that committee.

EDUCATION COMMITTEE

by Pat Griffith

On January 23, Luba Bezborodnikova, Associate Superintendent for Early Learning at the Puget Sound Educational Service District (PSESD), presented an enlightening overview of federal (Head Start and Early Head Start) and state (ECAP) programs and their eligibility guidelines. PSESD oversees comprehensive early learning programs serving 4000 families in King and Pierce Counties although most serve Pierce County. Comprehensive programs include not only classroom instruction but also services such as family services, mental health, special education, health and nutrition, and family engagement.

Washington standards for child care centers and staff are quite low compared to other states. Race To The Top funding will establish uniform quality guidelines to the state Department of Early Learning. Ten other states provide early learning for 3-4 year olds.

Ms. Bezborodnikova extended an invitation to our committee to visit the Educare Center in the White Center/Highline area, which serves a low income area with a large immigrant population. The committee is preparing to offer input into the proposed City of Seattle prekindergarten plans.

SAVE THE DATE!

Wednesday, May 28, 2014

Seattle-King County League of
Women Voters

***First annual
Political Breakfast
Fundraiser***

Join our organizing teams now so
that we can pull off this great event!

Contact the League office for more
information.

BOOK REVIEW by Vicky Downs

FLIGHT BEHAVIOR By Barbara Kingsolver

This novel captures our attention right away, as Dellarobia Turnbow, feeling glamorous in her new, if too tight boots, hurries up the mountain behind her husband's family farm. Looking forward to an escape from her stifling life, she arrives early for a secret tryst with a younger man. Turning toward the forested valley below, she is shocked to see what looks like a lake on fire.

The flames...appeared to lift from individual treetops in showers of orange sparks, exploding the way a pine log does in a campfire when poked. The sparks spiraled upward in swirls like funnel clouds. Twisters of brightness against a grey sky.

To Dellarobia, these millions of orange butterflies seem like a message from God. Ashamed of running away from poor old Cub, her husband, she returns home. In church, she describes the spectacle she has seen, and in no time television crews and strangers from everywhere descend on her little rural town in the South. The Monarch invasion and Dellarobia are their focus.

Ovid Byron, an entomologist, arrives to figure out why the Monarchs came to Tennessee rather than to their normal winter resting place in Mexico. Tourists come to see "the infestation", and school buses bring hundreds of children for an outing to the rural site.

For the pragmatic people in the economically depressed "Bible Belt", it was just natural to understand the Monarch butterflies' arrival as "a miracle". The idea that an aberrant arrival of millions of Monarchs was a clear sign of climate change, however, was something quick-witted Dellarobia "knew to be wary of." Her father-in-law didn't think any insect could be as important as his stand of big trees that he planned to sell for lumber, while his wife figured ways to make money charging tourists who came from out of town.

Like Dellarobia, who took a job with the entomologist, I was stunned to learn that normally Monarchs travel 2,800 miles from the forests of Mexico to northern states such as New York and then back, but it takes three short-lived generations to do so. Amazingly each butterfly lives only four to five weeks and moves from caterpillar to butterfly in nine to fourteen days. There is no "leader" or "leading generation" to demonstrate to the young when and where they should go. There is only a communal instinct. Yet year after year they know where to fly in order to find the food and climate they need.

Kingsolver provides us with much information about Monarchs and makes it clear they are intricately and intimately connected with the rest of the environment. Their numbers go down when particular trees in Mexico are felled or when pesticides in America destroy milkweed in fields and roadsides.

I was delighted to be introduced to Kingsolver's heroine from the poor and rural South. Dellarobia explains to her new friend, the entomologist, why it is she knows so little about science. In her high school, the science teacher was the coach. In class, he often asked for a show of hands to see how many would like to practice basketball and, of course, all the boys' hands went up, leaving the girls to stay and gossip in the classroom without a teacher. I was uplifted at the end, when Ovid Byron offers this woman who had wanted to go to college a chance to do so.

The opinions in this review are personal and do not represent those of the LWV.

UNIT MEETING

1. Welcome and Introductions
2. Announcements
3. Consensus Discussion of the Food Safety and Food Labeling Questions

While the questions are yes/no/no consensus for the most part, National has asked for comments with each section so please be sure to include on the recording sheet any confusion, concerns, or additional information you would like to add.

Food Safety

1. Which of the following approaches to food safety should government perform or fund?	Yes	No	No Consensus
a) Clarify and enforce pre-market testing requirements for new foods and food additives <i>developed using any new technology</i> (see note below with question 4)			
b) Require developers to monitor all food products <i>developed using any new technology</i> after releasing to the market			
c) Withdraw marketing approval if products are shown to be unsafe			
d) Require post-market monitoring of approved pharmaceutical applications in animal production for human health and environmental impacts			
e) Require developers of new products to provide data and other materials to independent third-parties (such as academic institutions) for pre- and post-market safety assessment as appropriate			
f) Limit use of antibiotics in animal production to treat and control disease			
g) Fund independent third-party (such as academic institutions) risk assessment of long-term and multiple exposures from foods on human health and the environment			
h) Promote crop management practices that decrease dependency on added chemicals (pesticides, herbicides, and synthetic fertilizers)			
i) Fund, train and add personnel for assessment and compliance functions of regulatory agencies			

Food Labeling

2. <i>How sufficient are the following regarding current food labeling?</i>	Insufficient	Sufficient	Too much	No Consensus	
a) Nutrition Facts on food labels					
b) Nutrition Facts on food labels as a means of consumer education					
c) Common allergen labeling					
d) Health and ingredient claims that consumers can understand					
3. <i>Which of the following should government achieve regarding marketing and ingredient claims on food labels?</i>			Yes	No	No Consensus
a) Define (and approve for use) health and safety marketing terms (e.g. immunity support, humane, pasture-raised, natural, etc.)					
b) Regulate the use of images or other sensory advertising					
c) Require that ingredient marketing claims accurately represent what is in the required ingredient list					
4. <i>Recognizing that each food developed using any new technology can be unique, and assuming that required food labeling should be useful to consumers, should the following generalized information relating to how products or components are developed be presented on food labels?</i> For the purpose of these questions, “ developed using any new technology ” or “ new technologies ” refer to any of many scientific processes for developing new crops or animals with genetic engineering, nanotechnology or other new techniques, which are not the traditional breeding or hybridization techniques. All these questions also assume some percentage threshold of new technology ingredients, such as the 0.9% used in the European Union.					
	Not Recommended	Voluntary	Mandatory	No consensus	
a) Contains ingredients developed using any new technology stating which technologies are involved					
b) Does not contain ingredients developed using any new technology					
c) If meat, fish, eggs, or dairy products are from animals that have consumed feed developed using any new technology stating which technologies are involved					
Comments:					

Note: Agriculture is a very complicated subject. The update undertaken by LWVUS covers all aspects of agriculture from farm economics, growing and raising the food we eat, to the processing, testing, packaging, labeling, and marketing of the food we find on the grocery shelves. It includes environmental impacts of agricultural and farming practices such as the use of herbicides and pesticides. The consensus questions have been categorized into five areas: 1. Economic health of the agriculture sector, 2. Animal management, 3. Research and development, 4. Food safety, and 5. Food labeling. Because of the scope, complexity, quantity of the study material, and the short timeframe given to provide input, the LWV Seattle-King County Board decided to focus only on the food safety and food labeling sections at this time. If you wish to read the full study materials, see the Agriculture Update on the LWV.org website.

Introduction

The information presented here has been tailored to address the Agriculture Food Safety and Food Labeling consensus questions. **There are three major governmental agencies that play a significant role in food safety and labeling: 1. the US Dept of Health and Human Services (HHS) which houses the Food and Drug Administration (FDA), the Center for Disease Control (CDC), and the National Institutes of Health (NIH); 2. the US Department of Agriculture (USDA) which includes the Food Safety and Inspection Service (FSIS), Animal and Plant Health Inspection Agency (APHIS); and 3. the Environmental Protection.**

Information is presented in separate chapters as follows:

1. Food and Drug Administration (FDA)
2. United States Department of Agriculture
3. Environmental Protection Agency (EPA)
4. Centers for Disease Control and Prevention (CDC)
5. Interaction Among Food Safety Agencies
6. Overview of Animal Management
7. Overview of Pesticide Management

8. Overview of Nanotechnology
9. Genetic Engineering and Genetically Modified Organisms in the Food System
10. Food Labeling

1. Food and Drug Administration (FDA)

The U.S. Food and Drug Administration in the Department of Health and Human Services protects public health by regulating domestically produced and imported human and animal drugs, biologics, medical devices, food and animal feed, cosmetics, and products that emit radiation. The FDA's Office of Foods and Veterinary Medicine (comprised of the Center for Food Safety and Applied Nutrition, and the Center for Veterinary Medicine) is charged with ensuring that the food supply is safe, sanitary, wholesome, and honestly labeled. FDA regulates more than \$450 billion of domestic and imported foods.

The FDA's authority extends over 80% of our foods, including dairy (milk, cheese, butter), plant products (vegetables, fruits, nuts, juices, spices, dietary supplements), seafood (finfish, shellfish, crustaceans, surimi-based), grain-based (bread, cereals, flour), and bottled water. The FDA also regulates animal feed.

FDA Food Safety Mission

The FDA food safety missions of particular interest include food additives, biotechnology, food labeling, and the production of educational materials. The veterinary missions of interest include ensuring the safety of animal drugs and feeds and regulation of genetically engineered animals. The FDA accomplishes these missions by designing regulations and enforcing them through review of reports submitted by food suppliers, periodic inspections of food processing facilities, and investigations of reported food problems. These activities are supported by roughly 28% of the total FDA budget.

Noteworthy Laws Affecting the FDA and Food

- Approval of an FDA role in monitoring pesticide residues (1954)

- Definitions and rules concerning food (1958) and color (1960) additives
- Labeling and post-market monitoring of infant formula (1980)
- Nutrition labeling and education (1990)
- Food allergen labeling and consumer protection (2004)
- Food Safety Modernization Act (2011), which calls for the FDA to prevent rather than simply respond to food contamination

Because the FDA coordinates its activities with many other agencies responsible for food safety, it alone is not responsible for implementing the above noted laws. The Food Safety Modernization Act is discussed in detail in the section on interaction of federal agencies. Food labeling, a major FDA food safety mission, is described in a separate Agriculture Update paper.

Nature of FDA Guidelines

Unlike regulations, FDA's Guidance for Industry (GFI) publications provide instructions to FDA personnel and the regulated community on how to comply with the Federal Food, Drug, and Cosmetic Act and other laws administered by FDA. The GFI are the product of FDA's best current thinking; however, the GFI are voluntary and not legally binding. They provide for regulatory flexibility by allowing alternative approaches if those approaches satisfy the requirements of the applicable statutes and regulations. The GFI apply to a variety of production and processes including Generally Recognized as Safe (GRAS) determinations and the use of drugs in animal production.

Current Issues

Updating scientific procedures

FDA is under pressure to update their procedures and research protocols for making safety

determinations on new additives, GRAS ("generally recognized as safe") substances, and genetically engineered foods and animal feed. New additives require premarket testing and approval, but GRAS substances have no such requirement. To be considered GRAS, ingredients either must have an established history of safe use based on their widespread consumption prior to 1958, or, qualified experts widely agree, based on publicly available scientific data and information, that the ingredient is safe in its intended use. Concerns about GRAS substance determinations include studies questioning the safety of certain artificial colors, sweeteners, and preservatives as well as the voluntary nature of the program. Regarding genetically engineered foods, FDA evaluates a new GE food or animal feed for the presence of or additional allergens or toxins based on its review of company-supplied studies but independent and/or long-term safety studies are not required.

Federal and state appropriations to support the FDA food safety mission

Food safety was 42% of FDA budget in the 1970s and has been less than 25% since 2003. FDA has approximately 2,000 inspectors to cover the more than 130,000 facilities for which it is responsible while USDA has 7,800 inspectors for just 6,800 facilities. The disparity in human resources is due, in part, to the different rules : USDA is required to inspect virtually all meat carcasses while FDA food inspections are based on statistical sampling methods. The 2011 Food Safety Modernization Act, the most comprehensive food safety reform in 70 years, is expected to cost \$1.4 billion over the next five years, yet roughly \$50 million was appropriated by Congress for 2012. Growth in food imports, which now represent 15% of the U.S. food supply also presents a challenge, with FDA able to inspect only 2% of these imports annually. State departments of public health are partners in compliance, but face low and decreasing levels of both state and FDA funding to conduct inspections and product sampling.

2. United States Department of Agriculture

The United States Department of Agriculture (USDA) and its agencies develop, implement, and administer policy and programs related to farming, agriculture, nutrition, food safety, land management natural resources, forestry, and rural development. The actual program content and budget of the USDA is determined by the Farm Bill, which is generally reauthorized by Congress every five years. With its broad reach, USDA agencies impact multiple areas of the LWV Agriculture Update.

Founding, Purpose and Mission

The USDA mission statement is that it “provides leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, the best available science, and efficient management.”

3. Environmental Protection Agency (EPA)

The US EPA is the Federal regulatory agency responsible for protecting the environment. The EPA addresses general concerns of environmental pollution and reviews and registers toxic materials both at the level of use and as residues in food, air and water. Agriculture is impacted in many ways by EPA regulations.

EPA Legislation Related to Agriculture

Specific EPA regulations impacting agriculture are found in 12 major existing EPA Laws and Regulations that are well summarized in Major Existing EPA laws and Programs that Could Affect Agricultural Producers, produced in June 2007, by the Environmental Protection Agency and available online. A series of simple charts is provided breaking down the impacts of the regulations on agriculture. Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) the EPA and the states register and license pesticides for use and establish certification and licensing programs that are managed by individual states. For pesticides used in food production, the EPA sets tolerance limits for residuals in or on food. As part of the pesticide process, the EPA registers the pesticides that are genetically added to plants – Plant Incorporat-

ed Protectants (PIP), but does not register the plant. Before registering a new pesticide or PIP the EPA requires the applicant to provide scientific studies and test data. A review takes place that includes evaluation of risks to humans from exposure. The EPA requires registered users to incorporate Insect Resistant Management (IRM) in their planting program. This includes the planting of refuge crops to reduce the risk of insects developing resistance.

Current Issues

Increased regulation is challenging for farmers, many of whom are already working on a thin line of profitability. Examples of regulations include upgrading expensive equipment to meet fuel and air emissions, reducing field size to provide for riparian zones, limited use of pesticides and feedlot regulations.

As new technologies, such as nanotechnology, are introduced, the EPA will need to make determinations as to whether additional regulation is required.

4. Centers for Disease Control and Prevention and National Institutes of Health

Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention (CDC), located in the Department of Health and Human Services, have wide-ranging responsibilities for human health including detection, prevention, and monitoring of foodborne illnesses.

Tracking the Public Health Burden of Foodborne Illness

CDC studies show that each year roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases. CDC's 2011 estimates provide the most accurate picture yet of which foodborne disease vectors cause the most illness in the United States. Since 1996, the Foodborne Diseases Active Surveillance Network, FoodNet, has been tracking trends for infections

transmitted through food. The FoodNet database provides a foundation for food safety policy and prevention efforts by estimating the number of foodborne illnesses and monitoring trends in the incidence of specific food borne illnesses. FoodNet also attributes illnesses to specific foods and settings and disseminates this information to the public and to others working on food safety issues.

Investigating Outbreaks and Managing the DNA “Fingerprinting” Network

CDC has an Outbreak Response Team that collaborates with a national network of epidemiologists and other public health officials who work together to ensure rapid, coordinated detection and response to multistate outbreaks of foodborne, waterborne, and other intestinal diseases and promote comprehensive outbreak surveillance. The team also seeks to improve the collaboration and partnership among officials in local, state, and federal agencies who work with foodborne and diarrheal disease outbreak surveillance and response (for example, state and local health departments, the U.S. Department of Agriculture (USDA), the U.S. Food and Drug Administration (FDA), and PulseNet). PulseNet is a national surveillance network made up of state and local public health laboratories and federal food regulatory agency laboratories that compares the ‘DNA fingerprints’ of bacteria from patients to find clusters of disease that may be foodborne.

In 2012, CDC monitored between 16 and 57 potential food poisoning clusters each week and investigated more than 200 multistate clusters. These investigations led to the identification of contaminated sources, which resulted in actions to stop the outbreaks, including the recalls of more than 300 products.

Tracking Trends in Resistance

The National Antimicrobial Resistance Monitoring System for Enteric Bacteria (NARMS) established in 1996 helps protect public health by providing information about emerging bacterial resistance, the ways in which resistance is spread, and how resistant infections differ from

susceptible infections. NARMS is an example of collaboration among state and local public health departments, CDC, the U.S. Food and Drug Administration (FDA), and the U.S. Department of Agriculture (USDA). This national public health surveillance system tracks changes in the antimicrobial susceptibility of certain enteric bacteria found in ill people (CDC), retail meats (FDA), and food animals (USDA) in the United States. A recent CDC report called attention to the rise of antimicrobial resistance, and cited agricultural use as a significant contributing factor, concluding, “The use of antibiotics for promoting growth is not necessary, and the practice should be phased out.”

National Institutes of Health

Environmental Risk Factors

The National Institutes of Health (NIH), another division of the Department of Health and Human Services, addresses human health and safety through medical research. NIEHS (National Institute of Environmental Health Science), an institute of NIH, conducts research on environmental factors contributing to human disease. Among NIEHS priorities relevant to the agricultural sector are the following:

Endocrine Disruptors

Endocrine-disrupting compounds (EDCs) are chemicals that act as “switches” for human hormones, and as a result even tiny amounts can have significant impacts on the normal function of tissue and organs. EDCs in use with regard to food and farming include:

BPA, used in plastic bottles and to line tin cans

Phalates, used as an inert ingredient in many agricultural pesticides

Arsenic, used in chicken feed to promote growth until recently banned for this use by the FDA

Pesticides, insecticides, and fungicides - of the chemicals known to be endocrine disruptors

tors, “46% are insecticides, 21% herbicides and 31 fungicides.”

5. Interaction of Federal Agencies with Food Safety Missions

Responsibility for food safety is shared by a number of federal, state and local agencies. In 2007 the General Accountability Office placed the fragmented federal oversight system for food safety on its list of High Risk government operations because of inconsistent oversight, ineffective coordination, and inefficient use of resources. In response to GAO recommendations, the President reconvened the Council on Food Safety and established the Food Safety Working Group in 2009 to coordinate federal efforts. However, the food safety program remains on the High Risk list because a government wide performance plan for food safety that includes

results-oriented goals and performance measures and information about resources has not yet been developed. Without a government-wide plan, decision makers do not have a comprehensive picture of the government’s performance on food safety.

Structure and Organization of the Food Safety Agencies

A detailed discussion of these interacting services is provided in an article from the Seton Hall Law Review entitled “Organizing Federal Safety Regulations”. The following table from that article shows the division of responsibilities by food type and agency and gives a description of each agency’s focus. Although extensive, the table is not all inclusive as it leaves out activities such as the monitoring of foodborne illnesses carried out by the CDC, the USDA role in fruit

Food	Regulator(s) [†]	Comments
Alcoholic beverages	ATF, FDA	ATF licenses and inspects breweries. FDA oversees wine coolers
Eggs	FDA, AMS, FSIS, APHIS	FDA has lead jurisdiction over shell eggs. FSIS continuously inspects egg products. AMS operates a voluntary grading program. APHIS monitors animal health
Fruits & vegetables (including GE varieties)	FDA, EPA, USDA	EPA and USDA share pesticide regulation responsibilities. FDA enforces standards for pesticide residues on processed food.
Grain	FDA, GIPSA, EPA	GIPSA establishes and enforces identity standards through inspection. FDA enforces standards for pesticide residues on processed food.
Meat & poultry	FSIS, FDA	FSIS inspects meat during processing. FDA holds regulatory authority once meat leaves the slaughtering or manufacturing plant.
Processed Foods	FDA	FDA is responsible for most non-meat products.
Seafood	FDA, NMFS	FDA oversees sea food safety generally. NMFS runs a voluntary inspection service.
Water	FDA, EPA	EPA regulates tap water, FDA bottled water.
[†] Acronyms include ATF (Bureau of Alcohol, Tobacco, and Firearms); AMS (USDA Agricultural Marketing Service), FSIS (USDA Food Safety and Inspection Service), APHIS (Animal Plant Health Inspection Service), GIPSA (USDA Grain Inspection, Packers and Stockyards Administration), NMFS (National Marine Fisheries Service), ATF (Bureau of Alcohol, Tobacco and Firearms).		

and vegetable safety that goes beyond pesticide concerns, as well as some of the enforcement of food advertising and labeling functions that are carried out by other agencies such as the Federal Trade Commission (FTC).

In addition to this mix of agencies and responsibilities there is also a mix of underlying legislation. A recent GAO study on Federal Food Safety Oversight includes a four-page appendix table providing information on the underlying legislation for 15 agencies involved in food safety. This table lists each agency, identifies the programs and products under the agency's jurisdiction, notes the types of responsibilities they have (e.g., regulation, inspection, enforcement, research, administration of grants and cooperative agreements), and identifies the many authorizing statutes relevant to each agency.

USDA Role in Food Safety

The safety of meat, poultry and egg products is a major responsibility of the USDA Food Safety Inspection Service. The Federal Meat Inspection Act of 1906 requires mandatory inspection of livestock before slaughter, postmortem inspection of every carcass, sanitary standards for slaughterhouses and meat processing plants with ongoing monitoring and inspection of slaughter and processing operations for any meat that crosses state lines. The act requires all labels on any type of food to be accurate (although not all ingredients were provided on the label).

The pilot for a new meat inspection program for hogs was set up in 1997 to allow five processing plants to accelerate their processing lines and use company employees, instead of USDA inspectors to check that the meat was safe. The USDA inspector general reported in the spring of 2013 that the evaluation of the pilot had not been completed even though a number of safety violations were reported from three of the five plants. A GAO study said it would be difficult to recommend that the experimental procedures be extended across the 608 processing plants subject to inspection, but the USDA has said

it plans to complete the evaluation report by March 2014 and to roll out the program to save millions of dollars in inspection costs. These same procedures are authorized by the USDA for foreign meat.

Dozens of chicken processing plants are subject to the same procedures in a pilot program for proposed new regulations. The 49 page proposed USDA regulations for chicken processing would allow poultry processing plants to speed up their slaughter lines to 175 birds per minute while reducing the number of federal health inspectors 40%. This combination means that companies will rely more upon chemicals to keep the poultry free of contaminants. The proposed rule allows the use of chemicals on "air chilled" birds and use of the chemicals along the processing line, not just at the end. The FDA provides the chemical review and approval process, but relies upon data provided by the chemical manufacturers in its evaluation of the possible health risks that the chemicals could pose to consumers. USDA officials say that research into the effects of the chemical sprays on its inspectors or private employees is the job of another agency, but discomfort and even deaths attributed to the chemical spraying have been reported.

Through the Agricultural Marketing Service, Fruit and Vegetable Program, Specialty Crops Inspection (SCI) Division Audit Programs, voluntary independent audits of produce suppliers throughout the production and supply chain are available. While these programs are voluntary, any farmer who desires to market to a major supplier must achieve certification through a SCI Division Good Agricultural Practices (GAP) and Good Handling Practices (GHP) audit. These audits focus on best agricultural practices to verify that fruits and vegetables are produced, packed, handled, and stored in the safest manner possible to minimize risks of microbial food safety hazards. SCI Division GAP & GHP audits verify adherence to the recommendations made in the U.S. Food and Drug

Administration's Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables and industry recognized food safety practices. Over 90 fruit and vegetable crops may be audited for GAP certification.

The farmer pays for the GAP audit to become certified, and to successfully pass an audit must have comprehensive records and many plans for all aspects of the production and management of the crop. This includes such things as a contingency plan if a deer should enter his field; the disposal of crop residue and records of all chemical applications to the crop. Procedures such as hand washing by drivers who might enter a storage facility and care of oil leaks from machinery must be in place.

Food Safety Modernization Act (FSMA)

A recent effort to improve food safety monitoring is the Food Safety Modernization Act (FSMA) of 2011, which calls for the FDA to prevent rather than simply respond to food contamination. FDA describes this Act as the most significant change in U.S. food safety legislation in 70 years. However, it is important to note that it does not address:

... food safety risks from genetically engineered crops, pesticide use, or antibiotic resistance nor does it change food safety regulations for meat, poultry, and egg products, which are under the U.S. Department of Agriculture's jurisdiction.

Given the sharp rise in the share of US foods that are imported (now about 15% of all foods consumed in the U.S.) FSMA calls for the development of a new system for import oversight that requires importers to ensure that their foreign suppliers have adequate preventive controls in place. This new approach should address some of the concerns noted in the FDA discussion about the small share of imports (about 2%) that FDA is able to physically inspect.

While the FSMA gave the FDA authority to address food safety issues more fully than previously, the Act did not include the specifics of

the regulations to be applied. FDA is now in the process of consulting with stakeholders with the intent of:

... [making] these new regulations scale-appropriate, conservation-friendly, and accessible to certified organic producers and value-added producers. The regulations focus on addressing food safety risks from microbial pathogen contamination (e.g., Salmonella, E. coli O157:H7, and Shigella).

... developing a proposed rule that will establish science-based minimum standards for the safe production and harvesting of fruits and vegetables and will address soil amendments, worker health and hygiene, packaging, temperature controls, water, and other issues. Food facilities will be required to implement a written preventive control plan, provide for the monitoring of the performance of those controls, and specify the corrective actions the facility will take when necessary.

Although the implementing regulations for the Food Safety Modernization Act are supposed to take into account the size and nature of the operation being regulated, the National Sustainable Agriculture Coalition and the Farmers Market Coalition are concerned that the regulatory burden of rules proposed in 2013 and currently undergoing public comment is still too onerous for small-scale producers and processors.

Current Issues

Among the key issues of interest concerning food safety programs in the U.S. are (1) the current division of responsibilities among agencies, (2) agency differences in approaches to inspection and enforcement, and (3) the adequacy of funding for the different food safety missions.

Over the years there has been a great deal of discussion about reforming the structure and organization of the food safety system and whether consolidation of monitoring responsibilities into a single agency would improve performance; the two recommended readings present different points of view on how to reform the

system.

Different approaches to inspection are illustrated by comparing USDA, which has statutory authority to conduct continuous inspections, with FDA, which has authority for periodic inspections. Another difference is that FDA has authority for on-farm inspection but not USDA. In terms of responsibilities, USDA has responsibility for a limited number of similar food products (which would be expected to facilitate inspections) while FDA has responsibility for a very diverse array of food and non-food products (which would complicate inspections and demand a greater range of expertise). Over time, there is a general trend toward fewer facility inspections. Annual inspections declined from more than 15,000 during the 1970s to a range of 5,000 to 10,000 during the 1980s and 1990s (with most years closer to 5,000 than 10,000). Since 2000 there has been a small uptick, with the range between 7,500 and 10,000 per year.

Actual food safety budgets and personnel do not always appear to be well calibrated with responsibilities. USDA, for example, has 7800 inspectors for 6800 facilities while FDA has 2000 inspectors for more than 130,000 facilities. Part of the reason for this disparity is the USDA mandate to inspect virtually all meat products while FDA uses much smaller samples for products under its responsibility. In 1972 the FDA drug and food budgets were about equal, yet in 2011, the Drug Center staff was more than 3 times greater than that of the Food Center staff (3097 vs. 871 people). The latest challenge is the estimated cost for the FSMA of 1.4 billion over 5 years, coupled with a Congressional authorization of only a \$50 million boost in the 2012 FDA appropriation.

6. Overview of Animal Management

The numbers are staggering: 29 million cattle, 68 million hogs, 250 million turkeys, 8.4 billion broilers (chickens), and 93 billion eggs. These are the 2012 production figures for U.S. animal agriculture. In the past two decades, four im-

portant trends have emerged in the livestock sector: (1) growth and concentration; (2) shifting geographic location; (3) increasing scale; and (4) the movement of meat processing from urban centers to rural communities. Whether primarily pastured or confined, an animal may spend its entire life in one location (e.g. “grass fed and finished” cattle operation; “farrow to finish” swine operation). Alternatively, farmers and ranchers may focus on one or more phases of an animal’s life (cattle: cow-calf operation; background or stocker; feedlot finishing; swine: farrow-to-wean, farrow-to-feeder, and feeder-to-finish.)

Consolidation

Following World War II, increased grain yields, improvements in refrigeration, and expanded transportation options made possible the growth of intensive animal feed operations. In 1935, 5.1 percent of the nation’s 42.8 million beef cattle were being fattened in feedlots, where cattle spend the last 90–120 days before slaughter rapidly putting on weight by consuming a grain-intensive diet. By 1963, that number had jumped to 66 percent. By the end of the century, almost all cattle were being fattened on feedlots. While feedlots with less than 1,000 head of cattle are still in the majority, they “finish” only a small percentage of cattle. Lots with 1,000 head or more finish 80 to 90 percent of US cattle, and the few feedlots with 32,000 head or more account for around 40 percent of cattle. Even greater consolidation has taken place in the dairy sector. In 1940, 76.4 percent of all US farms included cows for milking. As of 1997, that number was down to just 6.1 percent. While the number of cows kept primarily for milking dropped from around 24 million in 1940 to about 9 million in 2000, milk production rose steadily as a result of more efficient milking technology, advances in animal nutrition and health, as well as biotechnological interventions in breeding and pharmacology (discussed below).

Similar consolidation has taken place in the management of hogs and of poultry. According

to the GAO, there were about 3,600 large-scale poultry and meat operations in the US in 1982. By 2002 that number had jumped to almost 12,000.

Animal Feed

As in humans, animal health and welfare is dependent upon ingesting a proper balance of nutrients. The science of animal nutrition is complex and is the subject of much research.

Pharmaceuticals in Animal Feed

The FDA's Center for Veterinary Medicine (CVM) regulates the manufacture and distribution of food additives and drugs (excluding vaccines) that will be given to animals, both livestock and companion animals. The Federal Food, Drug, and Cosmetic Act (FFDCA) defines a drug as something that prevents or treats a disease, or changes the structure or function of the body in humans or animals. An example of the latter is "heat synchronization" in which a compound is given to a group of cows to make them ovulate at the same time.

A complete list of approved prescription and over-the-counter drugs for animals is contained in FDA's Green Book, which is updated monthly. According to the FDA, the approval process involves evaluation of research conducted by the drug's sponsor, including a review for (1) safety to the animal and food products made from the treated animal, (2) effectiveness, (3) impact on the environment, and (4) safety of the people administering the drug or who may come into contact with the drug. To prevent drug residues in animal-derived foods from entering the food supply, FDA approval specifies a "withdrawal time", i.e. a waiting period following administration of a drug to when the animal may be slaughtered or when milk may enter the food supply.

Antimicrobials are drugs administered to counteract infections by bacteria, viruses, worms, parasites, protozoa and fungi. They may be administered to an individual sick animal or a

group of animals to control disease when some in the group show overt signs of disease. Of concern is the administration of antimicrobials to conventionally raised livestock in non-therapeutic doses for disease prevention. Widespread use of antimicrobials in animal feed is linked to antibiotic resistant bacteria. Many of the antibiotics used in animals are the same as those used in humans. Others, like ionophores, have been developed for exclusive use in animals. Widespread use of antimicrobials in animal feed is linked to antibiotic resistant bacteria. According to the Animal Health Institute, which represents animal health drug sponsors, animal antibiotics make our food supply safer and people healthier. Antibiotics are a critical tool to prevent, control and treat disease in animals. In doing so, they also reduce the chance of bacterial transmission from animals to humans. Consumer groups, including Consumers Union, have repeatedly recommended that the FDA:

Phase out the use of antibiotics in livestock except for the treatment of sick animals.

Require drug companies and feed mills to disclose sales of antibiotics for use in food animals, broken down by drug, animal species and purpose (growth promotion, disease prevention, disease treatment).

Growth promoters include ionophores (non-human antibiotics) as well as hormones, both steroid and non-steroid. The drugs produce leaner meat and increase feed efficiency (that is, the ratio of feed to muscle growth). They also result in faster growth, which permits more production, either by bringing livestock to market more quickly or producing greater milk yields. Their use also results in reduced methane production per animal.

Beta-agonists are another class of growth promoters that include ractopamine hydrochloride, approved for use in turkeys, cattle and swine. Ractopamine residue in meats has recently come under scrutiny. Ractopamine has

been banned in the EU, China, Taiwan, and other global markets, after evidence that the drug harms animals, and concern about limited testing regarding human safety. Its detection in turkey samples recently led to a significant trade dispute with Russia, which has a zero tolerance policy. In the most recent development, Smithfield Foods, the largest American pork producer whose acquisition by a Chinese company is pending, announced it would be 50% ractopamine-free by June 1, 2013. **Organic arsenic compounds** in use as growth promoters since 1944, had been a focus of concern with regard to direct toxicity in animals and humans, and accumulating residues in water and soil. In September, 2013, the FDA withdrew approval for three of the four arsenical drugs that have been in use, and is studying the possible withdrawal of the fourth. **Pain medications**, including non-steroidal anti-inflammatory drugs may be co-administered with antimicrobials to treat an infection and its associated pain and inflammation. Or, they may be administered to animals with chronic inflammation.

Other Ingredients of Interest

In addition to pharmaceutical additives, livestock feed may contain other ingredients of interest: **Rendered animal products** include meat and bone meal, poultry byproduct meal, blood meal, and feather meal. Rendering and reuse of animal protein in feed are essential elements of a concentrated animal management system, creating economies in both feed and carcass disposal. Use of rendered animal materials in feed has been associated with increased levels of bacteria, antibiotic resistant bacteria, and prions, (protein agents associated with Bovine spongiform encephalopathy, BSE, or Mad Cow Disease). A 1997 FDA regulation prohibits the use of most mammalian protein in the manufacture of animal feeds given to ruminant animals, (cows, sheep, and goats), with an additional 2008 prohibition of the use of clearly defined high-risk cattle tissue in all animal feed. Debate continues regarding the efficacy of current regulations and inspections.

Animal Waste (including poultry litter and dried swine and ruminant waste) is used in animal feed for protein, crude fiber, and other nutrients. Traditionally, animal waste was used almost exclusively as fertilizer. The use of waste in animal feed developed concurrently with concentration of feeding operations, and provides cost savings for growers with excess animal waste, as well as cost savings relative to other forms of feed. Sapkota, et al., claim that animal wastes have been found to contain “pathogenic microorganisms, pesticide residues, or drug residues,” all of which can be passed on through animals to the meat prepared for human consumption. Feed nutritionists counter that with appropriate handling and phase-out before slaughter, animal waste provides inexpensive nutrition with no risk to animals or humans.

Other additives include plastic pellets, (“Polyethylene roughage replacement”) used as an inexpensive fiber substitute, contaminated or adulterated food (heat treated to destroy pathogenic organisms), and a wide mix of byproducts derived from processing of other foods.

Organic Feed standards prohibit most of the feed additives described above.

Aquaculture

Aquaculture is the farming of aquatic organisms such as fish, shellfish (oysters, mussels, shrimp) and plants. In addition to raising animals for direct food consumption, aquaculture includes hatcheries as well as fish raised for bait, for stocking surface waters, and for ornamental purposes. It encompasses both marine and freshwater species and can range from land-based to open-ocean production. U.S. seafood consumption has increased 50% since 1950 and has remained fairly consistent the past few years. According to National Oceanic and Atmospheric Administration (NOAA), about half of the seafood consumed in the United States is farmed, yet American aquaculture accounts for less than 5% of that consumption. Eighty-

six percent of our seafood is imported. In light of these consumption and availability patterns, multiple steps have been taken towards expansion of U.S. marine aquaculture.

According to the U.N.'s Food and Agriculture Organization, in 2013 the world will consume more farmed fish than wild fish. Seventy percent of wild fish stock is overfished. Overfishing in combination with pollution, and natural occurrences such as algal blooms and weather phenomena such as El Nino, are all drivers of the need for more controlled production using aquaculture.

The Fish & Wildlife Service (FWS—Department of the Interior) and the National Marine Fisheries Service (part of National Oceanic and Atmospheric Administration (NOAA)—Department of Commerce) regulate ocean-based aquaculture. The National Seafood Inspection Lab tests for chemical and microbiological contaminants in domestic and imported seafood. In addition there are at least six federal EPA-administered laws governing aquaculture.

Imports

Mislabeled fish is a well-documented phenomenon. The consequences of mislabeling are financial, with consumers overpaying for fish fraudulently labeled as higher priced species. Mislabeled fish may also have health consequences if consumers unknowingly purchase fish that contain toxins or contaminants. FDA electronically screens all food imports but only 2% of it is inspected, based on risk, and some (4%) will undergo laboratory analysis. The National Seafood Inspection Lab tests for chemical and microbiological contaminants in domestic and imported seafood, and the Department of Homeland Security Customs and Border Protection also has labs for testing seafood. However, according to a 2009 GAO report, the agencies haven't effectively collaborated to fight food fraud.

7. Overview of Pesticide Management

Presence of pesticides and herbicides in Food & Water

While pesticides and herbicides present on a plant's exterior can be washed off, other pesticides are systemic and remain in our food as they cannot be removed by washing or peeling. The USDA's Pesticide Data Program (PDP) is a national pesticide residue database program that operates in collaboration with state agriculture departments and other Federal agencies. Annual testing is conducted on samples of domestic and imported foods with a special focus on commodities highly consumed by infants and children. The data from this program form the basis for consumer group databases.

The 2013 PDP report shows that, similar to previous years, overall pesticide chemical residues found on tested foods are at levels well below the tolerances set by the EPA. Residues exceeding the tolerances were detected in 0.27 percent of the samples tested. Some residues with no established tolerance levels or tolerance exemptions were found, but the EPA has determined the extremely low levels of those residues are not a food safety risk, and the presence of such residues does not pose a safety concern.

While this is good news, it is an incomplete picture of the quantity or the effect of ingested pesticides. When the EPA establishes a tolerance level, it is based on a risk assessment of a single compound. As there is no limit to the number of different pesticides that can be on food, the risk assessment cannot and does not examine the "body burden," i.e. the additive effect of the pesticide under consideration along with presence of other chemicals to which we have been exposed. Nor does the risk assessment evaluate the possible synergistic, i.e. interactive effect, of those compounds. Moreover, the tolerance level is established on the active ingredient, though the inert ingredients that dilute and help deliver the pesticide may also be toxic.

While NIEHS is working to develop methods

to study the real world mixtures of exposures to synthetic chemicals (not just pesticides), the EPA has updated its human health benchmarks for 363 food-use pesticides that may be present in drinking water, but for which no drinking water standard has been developed. Advanced test methods permit detection of pesticides in water at very low levels. This improved testing technology along with the latest scientific information is part of the continuing effort to establish thresholds of a potential health risk. At the same time, the EPA has raised the amount of glyphosate residue allowed in the food supply. Glyphosate is considered to be a low toxicity herbicide - commonly known as Round Up.

8. Overview of Nanotechnology and Other Technologies

Nanotechnology is a process that builds, controls and restructures materials that are the size of atoms and molecules. A nanometer (nm) is one-billionth of a meter. (In a more familiar frame of reference, a sheet of paper is about 100,000 nanometers thick; a human hair is approximately 80,000–100,000 nanometers wide. See this chart http://www.engineeringtoolbox.com/particle-sizes-d_934.html to help in understanding the nanometer scale. One micron is 1,000 nanometers. Nanoparticles tend to be less than 100nm. The small size of the nanoparticles gives them a structure with a large surface area in proportion to size. The larger surface creates unique response characteristics (for example increased reactivity or intensified color or flavor).

Uses of Nanotechnology

Within the food industry, nanosensors incorporated into packaging can be used to detect spoilage or act as preservative (initial development is underway). In the future nanotechnology may be used to control release of color or nutrients in foods based on the consumer's preference. In some instances, food additives in current use may contain nanoparticles in part as the result of varying sizes of powdered components, for example titanium dioxide, an approved coloring and anticaking additive frequently used in sugar

products. With growing awareness of nanomaterials there is concern that the potential risks of nano titanium dioxide both in food and in the manufacturing plant need to be better evaluated. An excellent chart that summarizes the uses of nanotechnology in food and agriculture is found in the publication, "FAO/WHO Expert meeting on the application of nanotechnologies in the food and agriculture sectors: potential food safety implications: Meeting report."

Safety and Regulation of Nanotechnology

The NIEHS (National Institute of Environmental Health Science) acknowledges that not much is known about human health impacts of nanotechnology, although initial studies suggest risk factors for at least some nanomaterials of interest to agriculture, including carbon nanotubes (shown to increase seed germination and seedling growth). There is agreement that this technology may be important in the future; however, with the rapid expansion of research and development of new uses, questions as to safety and potential toxicity from these products need to be addressed as soon as possible. The risks include the ability of the particles to cross the blood-brain, dermal, placental and other barriers, potential impacts on biological systems and control and tracking of the particles. For example a recent study from the University of Missouri indicates that silver particles used as pesticide in treatment of pears, can be retained on the pear surface and penetrate into the pulp, and could potentially be taken into the human body. Whether or not these could be toxic is not yet known. Other concerns include effects in the environment on soil organisms and insects. Both industry and the public are seeking to have rules and guidance to address health and safety concerns, and the EPA is in the process of developing these.

9. Genetic Engineering and Genetically Modified Organisms in the Food System

The issues surrounding genetic engineering are complex and overlapping, rendering most attempts to generalize about GE foods mislead-

ing. The abundant information and misinformation on the topic adds complexity to issues ranging from government policy to individual health considerations.

Genetic engineering is the manipulation of an organism's genes by introducing, eliminating or rearranging specific genes using the methods of modern molecular biology, particularly those techniques referred to as recombinant DNA techniques.

Genetic engineering is utilized to induce characteristics that could: generate a higher yield for the crop; provide disease, insect or herbicide resistance; enhance nutritional value; allow plants to thrive under unfavorable growing conditions such as cold, drought or soil salinity; increase pharmaceutical value; or create a plant more effective for phytoremediation (pulling pollutants from soil or water). While many of these objectives can be accomplished through traditional hybridization techniques, new varieties can often be created more quickly and in a more targeted way through genetic engineering.

An understanding of the basic principles is important because confusion arises when people generalize and use terms like biotechnology, genetic engineering (GE) and genetic modification (GM) interchangeably. For clarity, this segment will use, "GE" or "GM" (without a following noun) to refer to any of several technical processes or techniques for transferring genes between species. The use of "GMO" or "GE" or "GM," with a corresponding noun, will refer to any organism, food, crop, animal, etc., resulting from such a genetic transfer.

Evolution of GE applications in the United States

The first GE food application was genetically modified rennet, approved for use in cheese in 1990. In 1994 Calgene received FDA approval to market the first GE food crop—the Flavr Savr tomato—now withdrawn from the market. This was followed by the introduction of several GE crops in 1995: insect resistant (Bt) corn;

herbicide resistant (Ht) soybeans, virus resistant squash, canola with modified oil composition. The same year also marked the regulatory approval of the first "stacked" GE seed, which was a cotton seed containing both a Bt and an Ht gene. Stacked seeds can provide resistance to multiple insects (a proposed response to the emerging problem of Bt resistance) while at the same time providing tolerance to various formulations of herbicide (currently, glyphosate or glufosinate). As of 2013, stacked crops accounted for more than half of all U.S. corn or cotton. Genetic engineering is also being used to develop potatoes and apples that resist browning, such as the non-bruising potato submitted for FDA and USDA approval in May 2013. To date, FDA reports having completed 98 reviews of GE crops or traits proposed for commercialization. Farmers have rapidly adopted GE crops and expanded their production; by 2013, GE cotton and corn represented 90% of planted acreages while soybeans and canola represented 93% of respective acreages. According to the Grocery Manufacturing Association, "70% to 80% of the food we eat in the United States, at home and away from home, contains ingredients that have been [produced from] genetically modified [crops]." GMOs are also expanding worldwide; a record 170.3 million hectares of biotech crops were grown globally in 2012, up 10.3 million from 160 million hectares in 2011, with adoption growing faster in developing (11%) than in industrialized (3%) countries.

Ht and Bt Crops

The most widely used GE crops incorporate gene coding for a glyphosate resistant enzyme from the bacteria *Agrobacterium tumefaciens*. This practice creates herbicide tolerant crops (or Ht crops) that can be sprayed with glyphosate without harm to the crop; glyphosate is found in weed killing products such as Roundup. Farmers have adopted Ht crops because they offered less spraying, less traffic on the field, and lower operating costs. Ht crops allow farmers to practice no-till methods, thereby reducing soil erosion and runoff. Over time, monoculture

methods, that use only these GE seeds and do not rotate crops, can create a field situation that is selective for the development of “superweeds” which are resistant to the herbicide. As a result, herbicide use, including more toxic herbicides, increases. Another common GE trait makes use of genetic material from a naturally occurring bacterium, *Bacillus thuringiensis* (Bt), which is often used by organic farmers because of its natural origin and low toxicity to humans and animals. The resultant Bt crops are resistant to insect predation, which means increased yields and less money spent on post-planting applications of insecticide for many farmers. The rapid growth in reliance on Bt for insect control, following the introduction of GE crops, appears to be contributing to rootworm resistance to the Bt rootworm trait, while a second major corn pest targeted by a Bt trait—the corn borer—has not shown resistance. Although the threat of resistance can be reduced by good management practices, such as planting non-GE refuge crops, there is debate about the size of refuge areas needed and concern that recommended refuge practices are not always used or effective.

Disease Resistant Crops

While Ht and Bt crops focus on increased yield through minimized damage from insects or weed competition, other GE crops focus on other potential advantages. Disease resistance is a major area of investigation. GE papaya was developed in Hawaii in response to the papaya ring spot virus, which threatened the Hawaiian papaya supply. Six varieties of GE yellow squash and zucchini currently on the market were engineered to resist three different viruses. Work is underway to develop GE oranges before the Florida orange succumbs to the green wilt virus, and to create a GE banana resistant to the devastating viruses that threaten the global banana supply. There have been efforts to develop virus resistant sweet potatoes and cassava in Africa, but the longevity of the resistance was found to be shorter than anticipated and yields lower than conventional varieties during the field testing phase; no commercial distribution has taken

place to date.

Biofortification

Biofortification involves breeding food to enhance the nutritional quality for the staple crops that many of the world’s poorest people rely on for most of their calories. Examples of biofortification include increasing the protein, vitamin A, mineral, or folic acid content of foods. In many cases, conventional breeding is being used successfully to enhance the nutritional quality of staple foods (e.g., vitamin A in sweet potatoes or zinc in wheat and rice). However, there are biofortification goals that cannot be accomplished through conventional breeding such as increasing the vitamin A content of rice, which is the most common staple cereal worldwide. This gap led to the development of Golden Rice and research on biofortification through genetic engineering for other crops and traits not easily addressed using conventional breeding.

Regulatory Framework for GE Crops

The early expansion of the use of GE in plant production and the use of GMOs in processed foods was supported by federal policies. The ability of individuals and firms to patent gene traits and GMOs provided incentives for investment in GE research and development.

In 1984, the Reagan Administration proposed a “Coordinated Framework for the Regulation of Biotechnology” based on three central tenets:

- U.S. policy would focus on the product of GM techniques, not the process itself;

- Only regulation grounded in verifiable scientific risks would be tolerated;

- GM products are on a continuum with existing products and, therefore, existing statutes are sufficient to review the products.

The Coordinating Framework and subsequent implementation placed the responsibility for safety and regulation of food and feeds modified via genetic engineering under the FDA, which

formally issued its policy for ensuring the safety of foods derived from genetic engineering in 1992. Under this policy, the USDA Animal and Plant Health Inspection Service (APHIS) regulates the importation, interstate movement, and environmental release of transgenic plants with the goal of protecting existing crops from hazards and assuring that GM plants and animals are safe to produce. The EPA registers pesticide products in transgenic plants prior to their distribution and sale and establishes pesticide tolerances for residues in foods.

Public Views on the GMO Regulatory Processes and Findings

Public views on the health and environmental safety of GE products marketed in the US and the adequacy of the regulatory framework come from peer reviewed journal articles and the popular press. Critics of the review process maintain that participation is voluntary, testing is done by the applicants, as opposed to the agencies themselves, and responsibility for safety rests, in most cases, with the individual developers. Developers believe that the process is really mandatory (though labeled “voluntary”), rigorous, highly prescribed, and data generation is both time consuming and costly, with an average price per approval of \$136 million over 13.1 years. The reasons for the differing points of view are well explained in a recent Grist.org blog, which concludes, surprisingly, that both sides are correct.

A recent review of the GE literature by Nicolina et al. concluded that the majority of peer reviewed papers do not indicate a health risk for animals or humans consuming GE products nor provide evidence of environmental hazards. Also, official statements by regulatory agencies in many countries and organizations with acknowledged scientific credentials (e.g., The US National Academies, the American Medical Association, the World Health Organization, the Royal Society, the European Commission, and Center for Science in the Public Interest) all agree that there is no evidence that it is danger-

ous to eat genetically modified foods. Recently, science-oriented publications including *Nature* and *Scientific American* also concluded there is no evidence that GMOs are bad for us. The statements concerning the absence of evidence that GE foods pose health risks, however, are generally accompanied by calls for continued vigilance because it is impossible to prove anything absolutely safe.

Despite the above assurances of safety and statements such as “Several trillion meals containing genetically engineered food ingredients have been consumed by people around the world, with not a single adverse effect documented,” concerns continue to be raised about GE risk assessment. In response to discussions in the popular press about a growing consensus among scientists on GE safety, scientists have published a statement to say that such a consensus does not exist. Epidemiologists point out, for example that it is difficult to actually study the link between GMOs and adverse effects in the US due to the absence of GMO product labeling as this means that “...people don’t know whether they’ve actually consumed [GMOs].”

GE Animals

While more than forty different breeds of animals have been genetically engineered, for research and medical purposes, as of yet, none have been approved for market release as human food. Traits being developed include “improved milk production and composition, increased growth rate, improved feed utilization, improved carcass composition, increased disease resistance, and enhanced reproductive performance.”

Commercial food applications predicted in the early years of GE work in animals have so far been elusive. “For example, many of the early transgenic livestock studies produced animals with a range of unexpected side effects including lameness, susceptibility to stress, and reduced fertility.” Regulatory hurdles and consumer acceptance of GE animals in the food chain has

also discouraged research and development investment (e.g., the case of the Enviropig™), but rapidly declining stocks of fish worldwide have spurred significant research on GE fish such as AquaBounty's salmon, which grows twice as fast as wild salmon as a result of inserting genes from other fish. AquaBounty's salmon have been slowly nearing FDA approval after more than two decades of research and an investment of over \$60 million. Consumer groups, including Consumers Union and Food & Water Watch however, have petitioned the FDA to assess the GE fish as a food additive, rather than an animal drug, and have expressed concerns about the transparency of the review process and the adequacy of the analysis of health impacts.

FDA Guidelines

In 2008, the FDA provided guidelines for the regulation of transgenic animals, premising the rules on the agency's authority to regulate new drugs. The FDA considers the recombinant DNA (rDNA) construct to be a new animal drug because it is an article intended to alter the structure or function of the animal. New animal drugs may be approved if they are shown to be safe and effective for the intended use. Animal clones produced through the use of genetic engineering are regulated under the same new animal drug provisions as any other transgenic animal. "Clones produced using a species' own DNA are considered equivalent to conventionally bred animals; cloned cattle, pigs, and goats may be sold as part of the food supply without labeling."

10. Food Labeling: FDA and USDA

In recent years, attention focused on food labeling has exploded with concerns related to nutrition, genetic modification, pesticide and/or additive use, identification of known allergens, product origin disclosure, tracking of products relative to recalls, and more. Food labels are prescribed in terms of what, where and how the information is presented. Contents of a food label must include name of product, ingredient list, nutritional information, net quantity, allergy in-

formation, and contact information (manufacturer, packer, and/or distributor).

The US Food and Drug Administration (FDA):

The FDA is the agency tasked with ensuring the safety of domestically consumed foods, which are produced both domestically and internationally. Food safety and labeling requirements are regulated by the Federal Food, Drug and Cosmetic Act (FFDCA) and the Fair Packaging and Labeling Act, which require a standard nutrition labeling system for all foods other than meats and poultry, approximately 80 percent of food sold in the United States. The FDA does not pre-approve producers' food labels; they establish requirements and guidance for mandated food label attributes.

The US Department of Agriculture (USDA):

The Food Safety and Inspection Service (FSIS), of the USDA, are responsible for the inspections and quality standards for meat and poultry consumables. Unlike the FDA, the FSIS mandates that all labels used for meat and poultry receive pre-approval before they can be used; this amounts to about 60,000 labels per year.

Current Situation

A driving force behind modern food labeling concerns has been the health industry. As food science has progressed, food choices and consumption quantity have been recognized as key factors in public health. Obesity, heart disease, and diabetes are just a few of the diseases associated with modern eating habits. Health professionals have determined that educating the public on their choices and reducing confusion with regard to food labels is integral to stemming this threat to American's health and the American economy. There is, however, substantial debate as to what information is appropriate and what method to communicate best serves the interests of stakeholders: consumers and producers.

A number of public interest groups are pushing for legislation on the grounds that consumers have a right to know, especially for perceived

health and environmental reasons. Opposition to labeling tends to flow along two paths. The first is that it unfairly stigmatizes a food. The second is that it unfairly penalizes farmers, producers (especially small producers) and retailers who could incur a multitude of additional costs that they will have to pass on to consumers.

Legislative Movements

Several federal food labeling bills were introduced in 2013. The Food Labeling Modernization Act of 2013 would grant the FDA additional authority in food labeling, particularly front of package (FOP) and information on the principal display panel (PDP). In April of 2013, HR 1699 and SB809 GE Food Right to Know Acts were introduced in their respective chambers; however, neither was given much chance of getting through committee. At the state level, there are about 30 states with movements to put mandatory labeling of GE foods to a vote of the people. If labeling legislation passes, then its effect on the labeling system, as a whole, is yet unknown. On one side of the equation are people who say that labels are already too busy to assimilate information effectively and that, with “the percentage of items that contain genetically engineered ingredients in a grocery store rang[ing] from 60 percent to 70 percent,” it may well be more effective to label those foods that do not have GMOs. Michael Pollan (a well-known supporter of organic and local food production), has stated that even though there is no evidence of danger to a person’s health, this is “a fight about transparency – people who want to know where their food comes from should have this information.” In the same NPR segment, David Ropeik (a specialist in risk assessment) stated,

The psychological research...suggests that when you give people choice over risk, they’re less afraid of it. Assuming that [the label] was something short of a skull and crossbones, it’s likely that many people would accept it and say, “Fine, I’ll buy it!”

Labeling Terms and Concerns

Allergy and Gluten Labeling

While there are over 160 known food allergens, the eight covered in mandatory labeling are responsible for 90 percent of documented food allergies and the ones most likely to present severe, life-threatening reactions. Gluten allergies/sensitivities affect 1 in 133 individuals (3 million nationwide). On August 2, 2013, the FDA issued their long-awaited finalized rule for the voluntary labeling of gluten free products.

Bioengineered Foods (AKA GMOs and GE Foods)

Draft guidance for bioengineered food labeling includes a statement that “each food bear a common or usual name or, in the absence of such a name, an appropriately descriptive term. In addition the label of the food must reveal all material facts about the food.” Following are guidelines the FDA provides to demonstrate this concept:

If a bioengineered food is significantly different from its traditional counterpart such that the common or usual name no longer adequately describes the new food, the name must be changed to describe the difference.

If an issue exists for the food or a constituent of the food regarding how the food is used or consequences of its use, a statement must be made on the label to describe the issue.

If a bioengineered food has a significantly different nutritional property, its label must reflect the difference.

If a new food includes an allergen that consumers would not expect to be present based on the name of the food, the presence of that allergen must be disclosed on the label.

The draft document goes on to give guidance to producers who either want to identify their product as bioengineered, or being made from

ingredients that are bioengineered, as well as guidance to those who wish to state their product is produced without bioengineered ingredients. Either option is currently done on a voluntary basis, provided the product is not shown to be significantly different from its traditional counterpart.

Ethical/Religious Labeling

For some people, it is important that they eat foods that are processed in a manner prescribed by their culture or faith. The two most used are “kosher” and “halal,” but these are not regulated at the federal level.

Health Claims on Food Labels

Claims made on food labels may have varying degrees of agency authorization. In an effort to respond to this practice the FDA has developed several categories in which health claims fall. In general, “health claims” characterize the relationship of any substance to a disease or health-related condition (e.g., diets low in sodium may reduce the risk of high blood pressure, a disease associated with many factors).

Qualified Health Claims: A qualified health claim is one that the FDA has investigated and added qualifying language to characterize the strength and limitations of the scientific evidence. FDA guidance, to companies that wish to pursue qualified health claims on their products, includes:

Identify the relationship between the substance (food, ingredient or component) and the disease, at levels that justify a claim;

The health claim (benefit); and

Scientific evidence that supports the claim.

From 2002 through 2010, the FDA received 16 petitions for 60 qualified health claims; of these, only 12 claims were approved. The cost to the agency to process the claims was \$12.8 million.

Nutrient content claims: may be based on an au-

thoritative statement of a scientific body of the U.S. government or the National Academy of Sciences. These claims serve to share a generalized level of a nutrient in a food, such as “free,” “high,” and “low” or with a reference such as “50 percent less fat.”

International Trade and Country of Origin Labeling (COOL)

COOL is a labeling law that requires retailers to provide their customers with information regarding the source of certain foods. This is an issue that is of importance in the growing global food market and supported by both consumer and agricultural advocacy groups. Under COOL, retailers are required to include labels with specific identifying information; for cuts of meat (‘muscle cuts’) it requires location of the three production steps (born, raised and slaughtered), it also prohibits the co-mingling of meats from more than one country.

COOL is implemented by the Agricultural Marketing Service (AMS) of the USDA. The requirements apply to an estimated 37,000 U.S. retailers. A 2011 audit of the program stated that although the AMS had made significant progress in implementing COOL rules, there has not been vigorous enforcement of retailers who mislabel, fail to label, or keep inadequate traceability records. The AMS acknowledged each of the program deficiencies identified in the audit; their response highlighted the relative newness of the law and budget constraints as key issues, but agreed to continue advancing the implementation of this important tool.

Irradiation

Irradiation has been used for more than thirty years to improve food safety and extend the shelf life of foods by reducing or eliminating microorganisms and insects. The FDA, WHO, CDC and USDA have all endorsed the safety of irradiated foods. The FDA requires the use of the international food irradiation symbol, accompanied with the statement “Treated with radiation” or “Treated by irradiation” on the food

label for any food items that are irradiated.

Organic Labeling

Organic, as an official marketing term, is relatively new in the federal food system; the first accepted standards were adopted in 2000 and went into effect in 2001. The USDA has sole authority for the certification, accreditation, compliance and enforcement of the National Organic Program. Any producer that wants to use the Certified Organic label must comply with USDA standards. It “indicates that the food or other agricultural product has been produced through approved methods that integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used.” “All operations [throughout the food system] with more than \$5,000 in annual organic sales must be certified.”

Transparency and Clarity of Information

Much of the discussion in food labeling centers on the consumer’s right (or need) to know on a variety of issues including, but not limited to: health-related, genetic engineering, irradiation, adulterated food products, sustainability, and nanotechnology applications.

The Center for Science in the Public Interest is seeking better rule making and enforcement from the FDA on misleading food labels. It is common for companies to place pictures of the product on the label that misrepresent what consumers are getting, despite the fact that the ingredient label is accurate. For example, a box of blueberry waffles that depicts large, plump blueberries while the label reads, ‘artificially flavored blueberry bits.’ According to Michael Jacobson, of the Center for Science in the Public Interest, accuracy in food labels is a low priority for the FDA. FDA staff attorney, Rebecca Goldberg, speaking in a personal capacity, stated that barriers include an alphabet soup of overlapping regulatory agencies as well as First Amendment rights relative to commercial speech.

Future of Food Labeling

The debate over food labeling shows no signs of abating. Consumer groups, the health industry, and niche agricultural groups are mounting pressure on the FDA and state legislators, to bring a cleaner, less confusing, labeling system to the American public. The GAO has determined that the FDA has been challenged with a need to assess relevant evidence of claims made by companies, countered by a lack of legal authority to compel companies to provide such information. The GAO has further determined that the “FDA’s oversight and enforcement efforts have not kept pace with the growing number of food firms...and the FDA has reported that limited sources and authorities challenge its efforts to carry out its food safety responsibilities and impact their efforts to oversee food labeling laws.” The issue of food labeling will continue to evolve as stakeholders continue to work for a balance that best meets the needs of the public in the dynamic food industry.

Multimedia Resources for Background Information

Below are some examples of multimedia resources. These are not meant to endorse any particular practice or viewpoint, but to give you an indication of the breadth of the topics. Please feel free to share your thoughts on the Agriculture Update Forums at forum.lwv.org.

AQUACULTURE

Mote Aquaculture Farm (video 7:28 minutes)
https://www.youtube.com/watch?v=_XwLGE0Q5_o

Salmon farming in British Columbia (video 5:58)
<http://salmonfarmers.com/virtual-video>
By the BC Salmon Farmers Association

Farmed Salmon: Unhealthy and Unsustainable, Ocean Futures Society, (video 5:13 minutes)
<http://www.youtube.com/watch?v=1YD9KDE92J8>

ORGANIC FARMING

USDA Certified Organic Farm, Spring Chicken Media, (video 9 minutes)

<http://www.youtube.com/watch?v=k5Fappg2caw>

Joel Salatin Polyface Farm (by USA Today) (video 4:02 minutes)

<https://www.youtube.com/watch?v=KxTfQpv8xGA>
Covers the system he employs on his farm from beef, to broilers, to laying hens and pigs

See also the first part of 2008 Food for Thought lecture at Oregon State Univ. below under Sustainable Agriculture.

GENETICALLY ENGINEERED FOOD

The Eyes of Nye - Genetically Modified Foods (video 24:58 minutes)

<http://www.youtube.com/watch?v=GKm2Ch3-Myg>
Good “primer” on the concept of genetically engineered foods – it’s presented by Bill Nye in a comprehensively broad, simplified and even entertaining manner, making it viewer friendly. Disclosure: At the end, he does endorse farming responsibly, testing each case and labeling foods.

Wikipedia article on the genetically modified food controversies that seems to include most points of view (text) http://en.wikipedia.org/wiki/Genetically_modified_food_controversies

See also middle part of the 2008 Food for Thought lecture at Oregon State Univ. below under Sustainable Agriculture.

NANOTECHNOLOGY

Nanotech Risks, Discovery Channel, 2009 (video 2:10 minutes)

<http://www.youtube.com/watch?v=qc0KLV8CW08>
Andrew Maynard, chief science advisor for the Project on Emerging Nanotechnologies, talks to Jorge Ribas about the technology’s risks

Agricultural nanotechnology and the future of food, webinar by the Institute for Trade and Agriculture Policy, May 2013 (video 57:43 minutes).

<http://www.youtube.com/watch?v=q0R9az7P6h0>
Technical webinar about nanotechnology applications in food and farming, potential risks, and regulatory recommendations

LABELING

U.S. FDA Food Labeling Regulations (English) (video 3:46 minutes)

<http://www.youtube.com/watch?v=fJhZWXAndko>
This is a brief video introduction on the various components of U.S. FDA Food Labeling Regulations. Its audience is to give producers an understanding of regulations but I think the info is appropriate for our population.

Commonwealth Club of California Oct. 2012 panel on Prop. 37: “GMO: Label or Not?” (audio 1:10 hours)
<http://www.commonwealthclub.org/events/2012-10-25/gmo-label-or-not>

SUSTAINABLE AGRICULTURE

2008 Food for Thought lecture at Oregon State Univ. (video 1:24 hours)

<http://www.youtube.com/watch?v=WP-QSGrTu7s>
UC Davis genetic engineering expert, Professor Pamela Ronald, and her organic farmer husband, Raoul Adamchak, discuss how the best practices of both organic farming and genetic engineering can be used together to improve farming. Note: the lecture can also be searched through the “transcript” button for key terms and what times they are covered in the video – it appears to be voice recognition, so is not 100% accurate, but is still a very neat feature.

Out to Pasture: The future of farming (video 34:11 min)

<https://www.youtube.com/watch?v=MrRqi8-Y8ak>
Out to Pasture contrasts industrial-style confined animal production with farms that raise food animals outdoors in diversified operations, striving to be sustainable.

Who Killed the Honey Bee? (BBC Documentary) (video 58:50 minutes)

<https://www.youtube.com/watch?v=bjef4QiKWfg>
An investigation into colony collapse disorder and die-offs of bees

CROP INSURANCE

Crop Insurance 101 (video 3:35 Minutes)

<https://www.youtube.com/watch?v=TixSJuOh6YM>
Tom Zacharias, President of NCIS, explains the basics of crop insurance

ANIMAL MANAGEMENT

Michigan Farmer Fights Livestock Factory Farm Pollution (video 3:06 minutes)

<http://www.youtube.com/watch?v=I6iAhrP0-rY>

Beef Documentary (video 6:33 minutes)

<https://www.youtube.com/watch?v=onITAppbWyE>
Uploaded on Sep 21, 2011. Farmers discussing the science behind a cattle feedlot and the care involved in raising the cows. The environmental practices they observe and are constantly improving upon are showcased.

Inhumane Feed Lot Beef vs. Humane Grass Fed Beef (video 3:31 minutes)

<https://www.youtube.com/watch?v=zUDCh7nSUEQ>,
FOX News segment discussing health and practice differences (some graphic scenes)

Living Downstream from a Pig Farm (video 3:01 mins)

<http://www.youtube.com/watch?v=eu15Mf696zI>

Hog Production at Smithfield Farms (video 4:11 mins)

<http://www.youtube.com/watch?v=dOboXPYWetk>

Undercover at Smithfield Foods (video 3:36 minutes)

http://www.youtube.com/watch?v=L_vqIGTKuQE
Humane Society discussion of Smithfield gestation crates

Unit Meetings

(Unit Meeting dates and times are subject to change. If you plan to drop in, please feel free to do so but we highly recommend you contact the unit leader to make sure you have the most current information.)

Unit Leader email	Phone	Time	Location
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Wednesday, March 5

SOUTHEAST KING COUNTY/ENUMCLAW - Cathy Dormaier

clcathy@skynetbb.com	360-802-6799	11:30 a.m.	Frankie's Pizza 117 Roosevelt, Enumclaw
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Monday, March 10

FIRST HILL – Joan Lawson

joanvlawson@gmail.com	206-382-3147	10:00 a.m.	Horizon House, Forum & Social Rm 900 University St, Seattle
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CAPITOL HILL/MONTLAKE

	206-329-4848	7:15 p.m.	Hostess: Linnea Hirst 1602 E McGraw, Seattle 206-322-3076
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SOUTHEND - Marian Wolfe and Vivian Montoya

hedgwolfe@aol.com	206-763-9430	7:30 p.m.	Hostess: Vivian Montoya
montoyaviv@yahoo.com	206-695-2620		4932 42nd Ave. S, Seattle 206-695-2620

Tuesday, March 11

BELLEVUE/KIRKLAND/REDMOND - Bonnie Rimawi

bonnierim@aol.com	425-820-7127	12:00 p.m.	The Bellevue Library, Room 6 1111 110th Ave NE, Bellevue
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WEST SEATTLE – Amanda Berry and Ethel Williams

amandamberry@earthlink.net	206-724-7518	1:00 p.m.	The Kenney
etheljw1@q.com	206-932-7887		7125 Fauntleroy Way SW, Seattle

Wednesday, March 12

VIEW RIDGE – Gail Winberg

winbergeng@q.com	206-524-7801	12:45 p.m.	Brig Bldg. (6344) in Magnuson Park 7400 Sand Point Way, Seattle
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Directions: Go into the Park through North entrance at 74th and drive EAST toward water. At the STOP sign, turn LEFT to park in front of the Brig, or RIGHT, for more parking. There will be a speaker.

Unit Leader email	Phone	Time	Location
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Wednesday, March 12			
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QUEEN ANNE/MAGNOLIA/BALLARD EVENING - Teddy Geokezas & Elsie Simon

tgeokezas@msn.com	206-782-5036	7:30 p.m.	Hostess: Linda Snider
elsiesimon@comcast.net	206-283-6297		3416 30th Ave W, Seattle 206-285-4432

Thursday, March 13			
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UNIVERSITY HOUSE/WALLINGFORD – Alice Chew

achoo92@q.com	206-547-5395	10:00 a.m.	University House, Auditorium 4400 Stone Way N, Seattle
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NORTH CENTRAL – Jan Orlando

orlanre@aol.com	206-524-0936	2:00 p.m.	Hostess: Alice Rasp 4523 5th Ave NE, Seattle 206-633-1835
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Saturday, March 15			
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BALLARD/MAGNOLIA/QUEEN ANNE DAY – Joan Peterson

joanmepeterson@gmail.com	206-789-7447	10:00 a.m.	Please call for location information.
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Wednesday, March 19			
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NORTH KING COUNTY – Toni Potter

antoniapotter@comcast.net	206-365-8949	9:15 a.m.	Third Place Commons Meeting Room 17171 Bothell Way NE, Lake Forest Pk
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SOUTHWEST KING COUNTY – Mary Ehlers and Kathy Jorgensen

maryehlers@comcast.net	253-941-1930	7:00 p.m.	Foundation House
kjorgensen@juno.com	253-859-8349		32290 1st Ave S, Federal Way

Thursday, March 20			
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ISSAQUAH DAY – Margaret Austin

margaret.austin@comcast.net	425-392-5760	10:00 a.m.	ECHO room, Issaquah City Hall 130 E Sunset Way, Issaquah
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Board & Committee Contacts

Term	Executive Committee			
2013-15	<i>President</i>	Ellen Barton	206-329-4848	president@seattlelwv.org
2013-15	<i>1st VP-Action</i>	Janet Winans	206-323-4825	janetwinans@earthlink.net
2012-14	<i>2nd VP-Program</i>	Beatrice Crane	206-783-8485	bscrane@comcast.net
2013-15	<i>Secretary</i>	Amanda Clark	206-236-0517	amandac5@comcast.net
2013-14	<i>Treasurer</i>	Cindy Piennett	206-329-4848	cindypiennett@gmail.com

Term	Directors			
2012-14	<i>Voter Editor</i>	Marge Baker	206-535-7299	votereditor@seattlelwv.org
2012-14	<i>Program</i>	Carol Burton	206-691-1298	ctburton7@gmail.com
2013-15	<i>Voter Services</i>	Joanna Cullen	206-329-8514	jfoxcullen@gmail.com
2013-15	<i>Social Justice</i>	Jayne Freitag	425-922-9501	mjafreitag@comcast.net
2012-14	<i>Membership</i>	Susan K. Jones	206-725-2902	susan@monckjones.com
2012-14	<i>Voter Services</i>	Julie Anne Kempf*	206-329-4848	julie@kempf.com
2012-14	<i>Unit Coordinator</i>	Lindsay Soyer	406-546-9314	lindsaysoyer@gmail.com
2012-14	<i>Development</i>	Lisa Unsoeld-Chang	206-329-4848	lisac@seattlelwv.org
2012-14	<i>Outreach</i>	Mary Jo Vigil*	206-318-6939	mjvigil@starbucks.com

Note: All board members listed above, with the exception of the Treasurer, are also members of the Education Fund Board

Term	Education Fund Officers			
2013-14	<i>President</i>	Ellen Barton	206-329-4848	president@seattlelwv.org
2013-14	<i>1st VP</i>	Lisa Unsoeld-Chang	206-329-4848	lisac@seattlelwv.org
2013-15	<i>Secretary</i>	Amanda Clark	206-236-0517	amandac5@comcast.net
2013-15	<i>Treasurer</i>	Ginna Owens	206-215-1408	ginnao@earthlink.net
2013-14	<i>Director</i>	Pat McCann	206-878-2799	thomaspa@centurylink.net

Term	Nominating Committee			
2013-14	<i>Chair</i>	Judy Bevington	206-329-4848	judybevington@q.com
2013-14		Judith Hance	206-329-4848	judithhance2@gmail.com
2013-14		Cynthia Howe	206-329-4848	howe.john@comcast.net
2013-14		Lisa Peterson	206-329-4848	M_K_productions@yahoo.com

**Note: Boardmembers Julie Anne Kempf and MJ Vigil are also serving on the nominating committee.*

Off Board Positions

Campaign Finance	Jean Carlson	206-774-6649	carlson.jean@gmail.com
KC South Liaison	Mary Ehlers	253-941-1930	maryehlers@comcast.net
CIS Coordinator	Cynthia Howe	206-236-0593	howe.john@comcast.net

Committees

<i>Economics & Taxation</i>	Jeanette Johnson		jeanettejohnson10@msn.com
<i>Education</i>	Joanna Cullen	206-329-8514	jfoxcullen@gmail.com
<i>International Relations</i>	see page 7		
<i>Social Justice</i>	Jayne Freitag	425-922-9501	mjafreitag@comcast.net
<i>Transportation</i>	Janet Winans	206-323-4825	janetwinans@earthlink.net

The League of Women Voters of Seattle-King County
1620 18th Ave, Suite 101
Seattle WA 98122

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Moving? Let us know!

Call the League office at (206) 329-4848 or
email info@seattlelwv.org

LWV SEATTLE-KING COUNTY:

National Agriculture Update: Food Safety

Thursday, March 6

7:00 p.m. - Doors Open

7:30 p.m. - Forum Begins

Seattle First Baptist Church

1111 Harvard Ave (at Seneca)

Seattle, WA

Accessible entrance on Harvard

This forum is free and open to the public

Claudia Coles, Office of Compliance &
Outreach, Food Safety & Consumer
Services, Washington State Department of
Agriculture

Trudy Bialic, Director of Public Affairs,
PCC Natural Markets

Chris Skilton, Heath and Environmental
Investigator, Food & Environmental Health
Services, Department of Public Health,
King County