Herbicide Program Myths and Facts

French Broad Electric Membership Cooperation has over 4,500 distribution miles of line that it must maintain. Given the terrain and size of the coverage area, it is impractical and would be extremely expensive for its members to maintain service by cutting trees along the right-of-way. Therefore, FBEMC uses herbicides in the immediate area (40 feet) surrounding its lines in order to avoid electrical outages.

There are many misunderstandings surrounding FBEMC's use of herbicides. Below, in bold, are those inaccuracies, followed by analysis of experts in the field:

Glyphosate is extremely hazardous to humans. It is known to cause chronic ailments, such as cancer and genetic mutations.

Glyphosate was first introduced in the 1970s in the herbicide product known as Roundup. The chemical is non-toxic. There have been an extensive amount of studies on the effect the chemical has on health.

The amount of studies conducted on the relationship between glyphosate and cancer alone is tremendous. When evaluating a group of farmers, a study found that glyphosate exposure was not associated with cancer incidence overall or with most of the cancer subtypes studied (De Roos). The study suggested there may be an association between multiple myeloma incidence and glyphosate, but further analyses must be done. In 2015, Professor Tom Sorahan, from the Institute of Applied Health Research at the University of Birmingham, picked up where the other study left off. He carried out analysis specifically related to the relationship between multiple myeloma and glyphosate. He found that there was no convincing evidence a link exists between multiple myeloma risk and glyphosate use (Sorahan). Sorahan was not alone in his conclusion about multiple myeloma risk and glyphosate use (Brown, Acquavella).

Genetic mutation is a concern that some have after encountering glyphosate. The recommended personal protective equipment of people using the chemical are simply a sleeved shirt, long pants, shoes and socks (Rodeo). In other words, the chemical is rather safe to be around as no face shields, tyrex or respirators are required when handling the chemical. If the chemical comes into contact with the skin, there are no visible skin changes or sensitization; however, the chemical can create irritation if it comes directly into contact with the eye (Glyphosate). Even if the chemical is swallowed, there are no chronic repercussions. The oral absorption rate of glyphosate is low and will be excreted essentially without metabolizing (Williams). The body does not try to absorb nutrients from the chemical. Blood chemistry, cellular components, and organ function have not been affected even at the highest tested doses (Glyphosate).

Ground water will be contaminated by the use of herbicides.

Some have expressed concern that glyphosate (the active ingredient in Rodeo and Roundup) will contaminate springs and ponds. Understanding how glyphosate works will help one understand why it is very unlikely that the herbicides will contaminate groundwater. Glyphosate prevents plants from making certain proteins they need to grow. Specifically, it blocks one of the acid pathways keeping the plant from receiving amino acids (Glyphosate Fact). It has a high soil adsorption coefficient, meaning the agent will bind tightly to soil particles until it is broken down (Schuette). Simply put, once the herbicide is introduced to the soil it will not part until the chemical has broken-down.

Glyphosate is harmful to plant and animal life.

Glyphosate is a broad-spectrum, non-selective systemic herbicide. Because FBEMC applies its herbicides with spray backpacks it is only applied to the most necessary locations. Combatable vegetation that does not interfere with electric facilities is not disturbed. The select spraying allows for a diverse mixture of grass, shrubs and other ground cover frequently used by birds, deer and other small animals. In fact, the national forestry service has been using herbicide application since 1994 to maintain its forests (National Strategy).

Glyphosate is low in toxicity to wildlife. Animals who consume glyphosate in large (and unlikely) quantities may have adverse reactions; however, it will not be lethal. Common reactions from animals that have been exposed to glyphosate are: drooling, vomiting, diarrhea, loss of appetite or drowsiness (Glyphosate Fact).

Glyphosate is non-toxic to fish should it enter the water system through erosion. Round-up, which is frequently compared to Rodeo, is toxic to fish. For this reason, in the unlikely event that the herbicide spray should enter the water system (through erosion). FBEMC uses Rodeo. Rodeo uses a different formulation that is safe for aquatic animals, specifically it emits the modified tallow amine present in Round-up (Glyphosate).

A specific animal that is most frequently brought up when discussing herbicides is honeybees. Honeybees have been in decline in recent years. Many people believe the use of pesticides and herbicides are to blame. The USDA carried out a study to determine the spray toxicity of 42 commonly used pesticides and herbicides. They categorized the toxicity of the various chemicals as relatively safe, intermediate toxic risk, and high risk of acute toxicity. Glyphosate was one of only three chemicals placed into the relatively safe category. At field use rate, there is a less than 1 percent chance that use will kill honeybees (Zhu).

Other countries have banned glyphosate use.

Glyphosate was restricted by several countries, most notably several from the European Union. The EU began research on the safety of glyphosate in 2012, which lead to conversation of the

Union banning the chemical. There is one misunderstanding about the circumstances leading to the conversation about glyphosate: the EU did not conduct research on the chemical because it believed it was a danger to society. It began research because EU regulatory system for plant protection dictates that active substances are reexamined for safety after a set period of time, which had expired (FAQs). Basically, glyphosate's approved period had ended and the agent was to be reexamined. After 3 years of assessment from experts in the EU's agencies, the EU has reapproved use of glyphosate in its countries. The European Food Safety Authority found that glyphosate is unlikely to pose a carcinogenic hazard to humans and evidence does not support classification as a carcinogen (Conclusion). All (27) but one Member State agreed with the EFSA's conclusion (FAQs).

Other countries that have placed restrictions on glyphosate include: Argentina, Sri Lanka, Columbia and Bermuda. Argentina currently has very little to no restrictions on its use of glyphosate. There is a movement in the country that is pushing for a ban on both GMO seeds (engineered to withstand herbicides) and the aerial spraying of glyphosate (Proposed Bill). The Columbian government uses glyphosate to fight cocaine (Columbia to Use). Sri Lanka, who had previously banned glyphosate, has now relaxed its ban to allow tea farmer to use it (Sri Lanka to Relax Glyphosate). Bermuda has lifted its ban on Rodeo (Jones).

The World Health Organization (WHO) International Agency for Research on Cancer (IARC) has declared glyphosate a probable human carcinogen.

As of 2015, glyphosate has been declared a probable human carcinogen. There are currently 81 agents in the probable carcinogen category, many of which are used our day-today life. Here are a few examples of agents found in the "probably carcinogenic to humans" category:

- **Acrylamide** is found in many different places. Its main use is in the production of paper, dyes, plastic and in treatment of drinking and wastewater (Acrylamide and Cancer Risk). It can also be found in food. It is formed in starchy foods during high-temperature cooking and can be found in commercial foods such as potato chips, French fries, cereals, and breads (Zyzak).
- **Chloramphenicol** is an antibiotic useful for the treatment of a number of bacterial infections in both humans and animals. In humans, chloramphenicol can be used to treat meningitis, plague, cholera and typhoid fever. It can be administered as eye ointment, orally or by injection depending on the illness. In animals, chloramphenicol is commonly used to treat skin infections, wound infections, intestinal tract infections, and pneumonia (Chloramphenicol Medication).
- **Consumption of red meat**
- **Occupational exposure as a hairdresser or barber**
- **Shiftwork involving circadian disruption**

- **Tetrachloroethylene** is a chlorinated solvent frequently used for dry-cleaning (link springer). It can also be used to make paint removers, printing inks, glues, sealants, polishes and lubricants.
- **Very hot beverages at above 65 C (149 F)**

There are currently 112 agents that are classified as *HIGHER* risk than glyphosate. Below are a few agents found in the "carcinogenic to humans" category:

- **Alcoholic beverages** are considered carcinogenic to humans for two reasons: contents of ethanol and acetaldehyde associated with consumption.
- **Consumption of processed meat**
- **Formaldehyde** is used in manufacturing processes. It is used in the production of adhesives, bonding agents and solvents that can be found in a variety of products: pressed-wood products, foam insulation, wallpaper and paints, synthetic fabrics and some cosmetics. It can specifically be found in some Elmer's Glue products, Irish Spring Body Wash products, Softsoap products, Tetra Aquarium products (Formaldehyde—Household Products Database).
- **Salted fish**
- **Solar radiation**
- **Tobacco (smoking, second-hand, smokeless)**
- **Wood dust**

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