Grounds/Rounding Environmental Impacts

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Creating Positive First Impressions

Maintaining healthy turf through balanced lawn care plan

Routine treatment of weeds in turf, cracks and planting beds

Picking up garbage daily

Annual displays provide a season long show of color and provides an opportunity for change from year-to-year

Perennials should have varied bloom times. Shrubs and ornamental grasses can add height and have eye catching fall color while providing winter interest

Monitoring and replacing crumbling sections of sidewalks to reduce trip hazards and maintain aesthetics

Monitoring areas for corrosion which could lead to injuries or damage to property

Monitor storm drains to make sure they are clear of debris so they can operate effectively

Potholes should be repaired ASAP to reduce potential for tripping and vehicle damage

FDC Connections need to be clear of obstructions at all times

Lawn and Landscape Maintenance

Importance of keeping your turf healthy

- Healthy turf improves property values and marketability of your facility
- Prevents runoff and erosion of topsoil and stabilizes slopes
- Cleans the air by trapping dust and smoke particles and absorbs pollutants such as carbon dioxide and sulfur dioxide
- Cleans water and increases infiltration to help recharge underground water supplies
- Helps control temperatures through transpiration and scatters light and radiation, reducing glare
- Absorbs sound, reducing noise 8-10 decibels in urban areas

Proper Mowing Practices

- Keep blades are sharpened so you aren't tearing the grass blade
- Wear proper personal protective equipment i.e. safety glasses, hearing protection, sturdy boots
- Mow at a height between 2.5" and 4". Higher cut lawn grasses are more stress tolerant. Don't remove more than 1/3 of the grass blade at a time
- Mow when the grass is dry whenever possible
- Alternate mowing patterns wherever possible
- Mulch lawn clippings in place as they will provide roughly 1 pound of nitrogen per 1000 square feet, equivalent to one normal fertilizer application

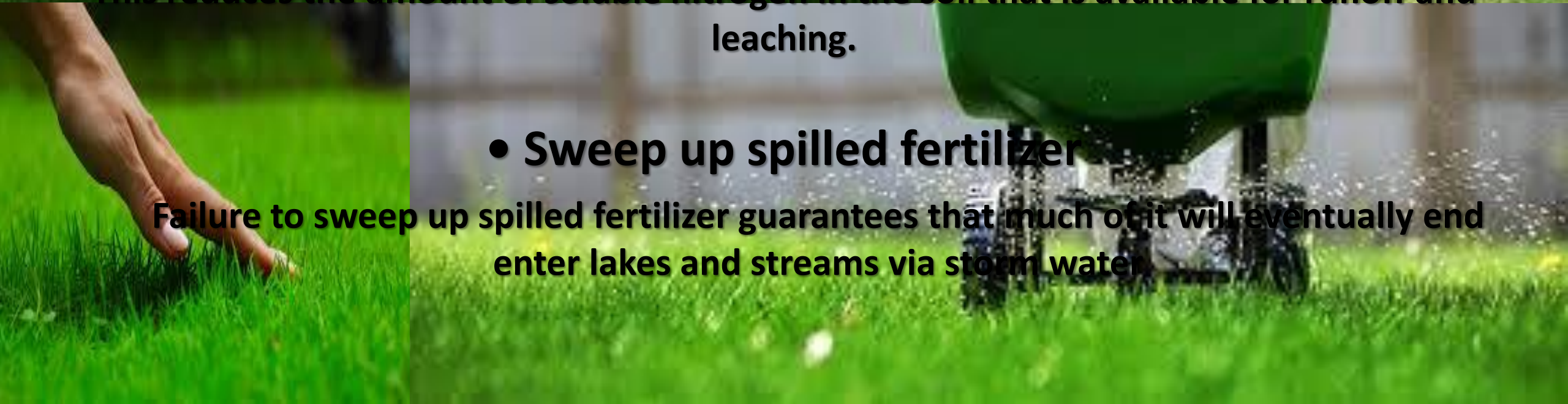
Fertilization and the environment

- **Fertilize your lawn each year**

University of Wisco[illegible] research sh[illegible]s that even a single season without fertilization can reduce grass stand density, increasing water runoff by as much as 70%!

- **Select fertilizers with at least 25-50% of slow-release nitrogen**

This reduces the amount of soluble nitrogen in the soil that is available for runoff and leaching.

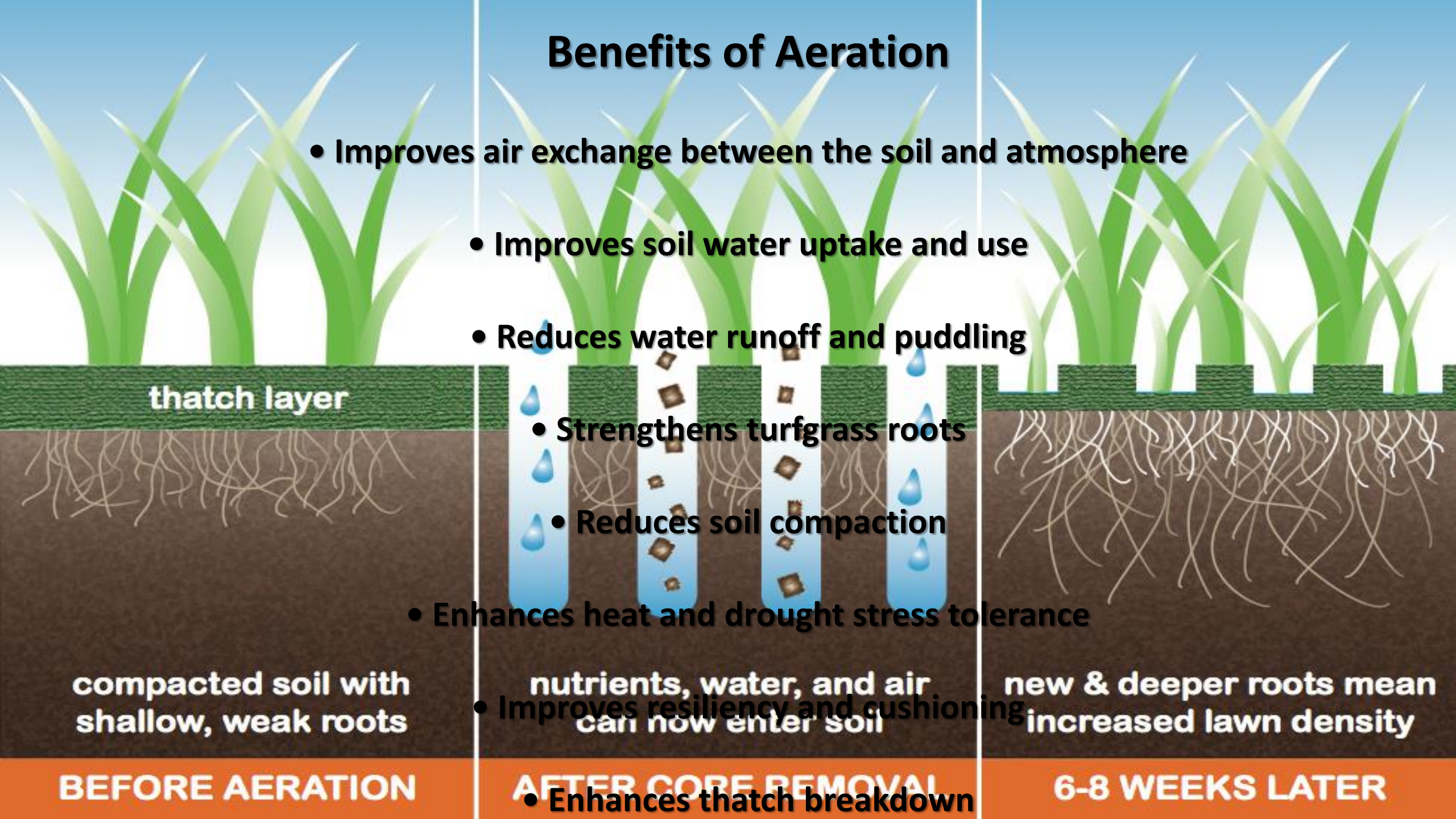


- **Sweep up spilled fertilizer**

Failure to sweep up spilled fertilizer guarantees that much of it will eventually end enter lakes and streams via storm water.

Benefits of Aeration

- Improves air exchange between the soil and atmosphere
- Improves soil water uptake and use
- Reduces water runoff and puddling
- Strengthens turfgrass roots
- Reduces soil compaction
- Enhances heat and drought stress tolerance
- Improves resiliency and cushioning
- Enhances thatch breakdown



Snow and Ice Control

- The average seasonal snowfall total for Madison is 50.4 inches
- On average, about 35-40 winter weather events hit Wisconsin each winter
- While we only experience a few large ice events each winter, there are numerous freezing drizzle and fog events that cause roads to ice over

- During the winter of 2015-2016, 399,046 tons of rock salt was applied to Wisconsin roadways – an average of 11.6 tons per lane mile
- Dane County uses an average of 43,000 tons of rock salt per winter
- During the winter of 2015-16 the DOT used 1,909,207 gallons of anti-icing agents compared to 435,277 in 2005-06

Advantages of Rock Salt

- Solid materials are generally more cost effective since they are mostly comprised of chemical compounds (no free water)

- They are easy to handle and store

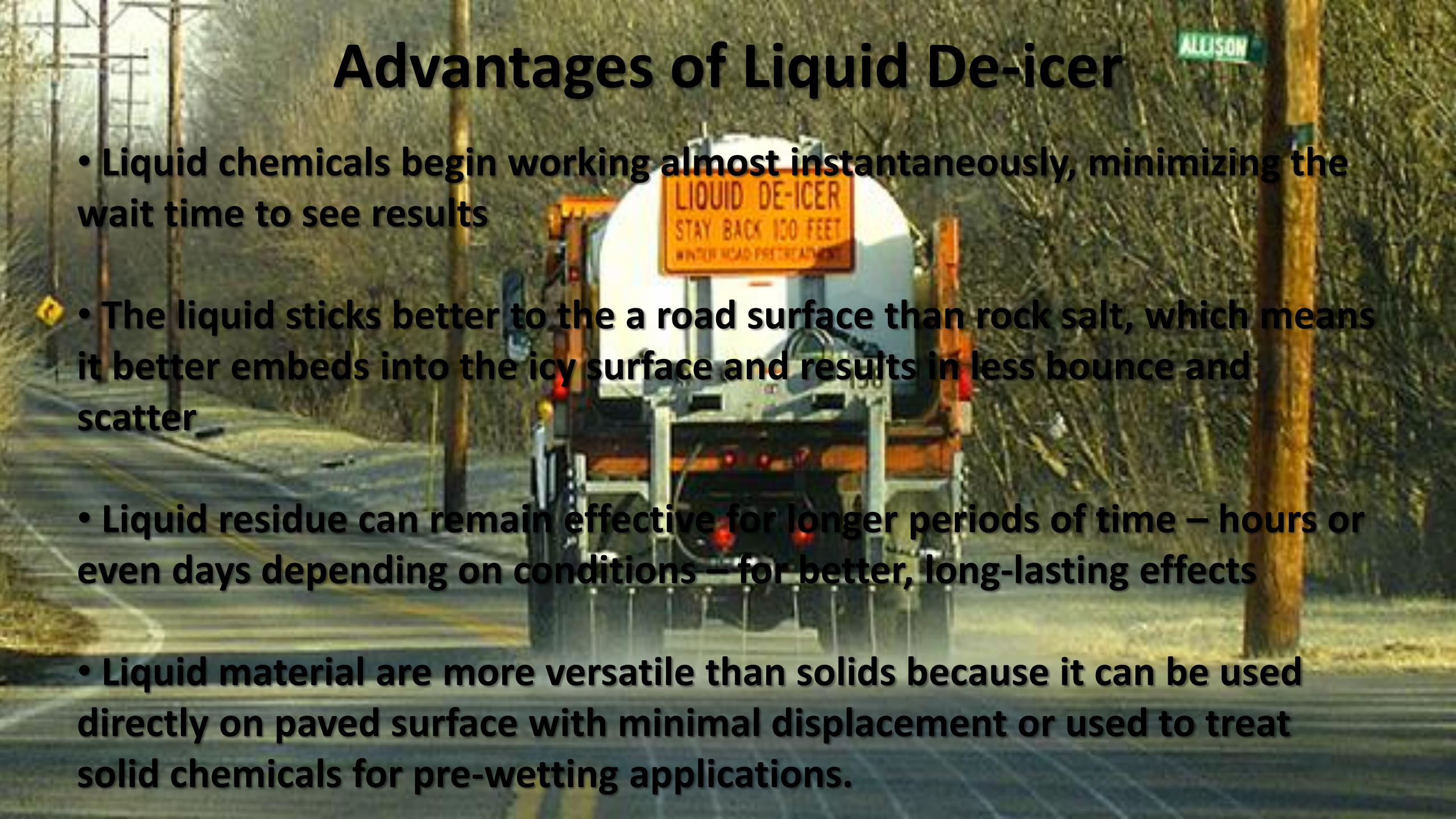
- Because solid de-icing material is close to 100 percent chemical state, it dilutes much more slowly for better retention

- The larger particles of rock salt, when first applied, contribute to greater skid resistance

Disadvantages of Rock Salt

- Requires moisture to go into the solution to be effective
- The solution process takes time, which may result in slower melting action, particularly in colder weather
- May bounce, scatter or be displaced by traffic, therefore it may not be best for anti-icing or early de-icing
- Can bind together and may become clumpy, which makes proper application difficult

Advantages of Liquid De-icer



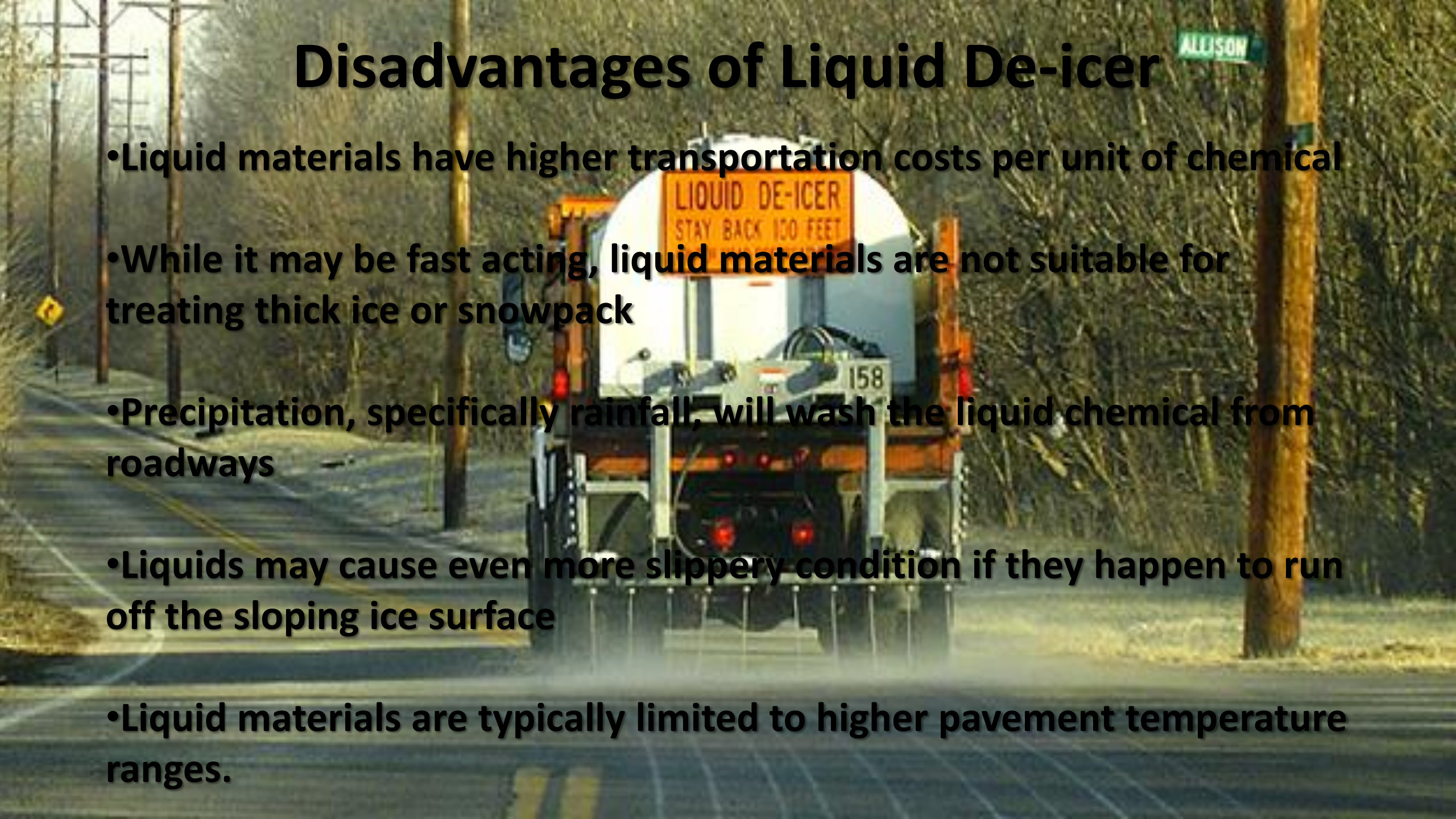
- Liquid chemicals begin working almost instantaneously, minimizing the wait time to see results

- The liquid sticks better to the a road surface than rock salt, which means it better embeds into the icy surface and results in less bounce and scatter

- Liquid residue can remain effective for longer periods of time – hours or even days depending on conditions – for better, long-lasting effects

- Liquid material are more versatile than solids because it can be used directly on paved surface with minimal displacement or used to treat solid chemicals for pre-wetting applications.

Disadvantages of Liquid De-icer



- Liquid materials have higher transportation costs per unit of chemical
- While it may be fast acting, liquid materials are not suitable for treating thick ice or snowpack
- Precipitation, specifically rainfall, will wash the liquid chemical from roadways
- Liquids may cause even more slippery condition if they happen to run off the sloping ice surface
- Liquid materials are typically limited to higher pavement temperature ranges.

Pre-wetting Salt

- Pre-wetting salt has become common. Wetting provides moisture to make brine. Faster melting action may be expected. In addition, the wet salt has less tendency to bounce or be blown off the road by traffic. Savings in lost or wasted salt of over 20% to 30% are possible.

- While any liquid de-icing chemical can be used to pre-wet, liquid calcium chloride is used widely. Applications of 6-10 gallons per cubic yard of salt are recommended. Calcium chloride has the added advantage of producing extra melting due to its effectiveness

- Using salt brine to pre-wet is becoming more common because of its lower cost. Some agencies are producing their own salt brine solution (23%). Liquid CMA and magnesium chloride are also used

- Savings from losing less salt to bouncing and traffic action can more than pay for pre-wetting. However, these benefits only result with lower application rates

Pruning Trees & Shrubs

Why should I prune my trees and shrubs?

- Helps control size and shape
- Helps maintain the structural integrity
- Reduces potential for pest and disease problems
- Encourages new growth below the pruning cut
- Rejuvenates old, overgrown plants
- Can influence flowering or fruiting
- Improve safety and security

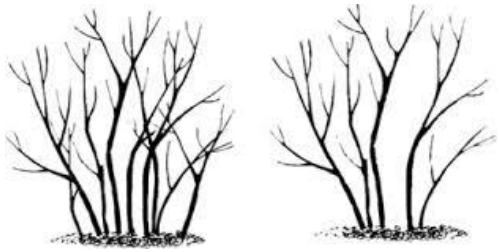
When should I prune my shrubs?

- **Broad-leaved evergreens such as rhododendrons, hollies and boxwoods require little pruning. If pruning is necessary, selectively prune branches ack to a side branch so the foliage hides the pruning cuts. These shrubs should be pruned prior to breaking dormancy in early spring.**

- **Spring-flowering shrubs like lilacs, forsythia, viburnums, weigela should be pruned after they have finished flowering in late spring or early summer. If you prune them too early you will remove many of the flower buds.**

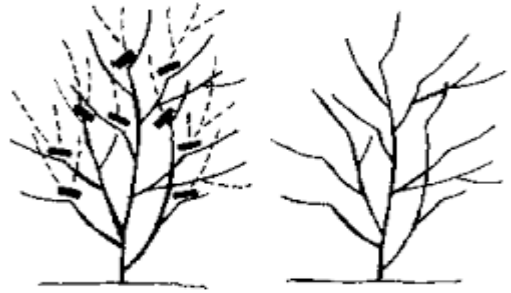
- **Summer-flowering shrubs should be pruned when they are dormant or in early spring before budbreak. Examples include hydrangaea, roses, spirea and potentilla.**

Proper Shrub Pruning Techniques



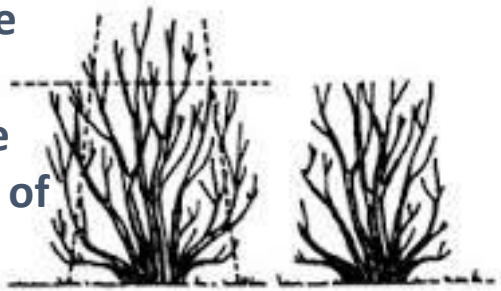
Thinning: This technique is the most common and best way to renew a shrub. Thinning preserves the overall plant shape and is particularly useful for shrubs that sucker from its base. Remove interior branches with loppers or a pruning saw back to the base of the plant or the point of origin. Remove only 1⁄3 of the largest branches at one time.

Heading back: Heading back can be used to reduce the height of most types of shrubs. This technique entails removing each branch back to a larger branch or bud. When pruning back to a bud, cut the branch on a slight angle to within ¼ inch above the bud. DO NOT leave a stub. Disinfect your pruning tools with alcohol or a 10% bleach solution after each cut to avoid spreading diseases. Wound treatments are not recommended and can actually slow down wound closure.

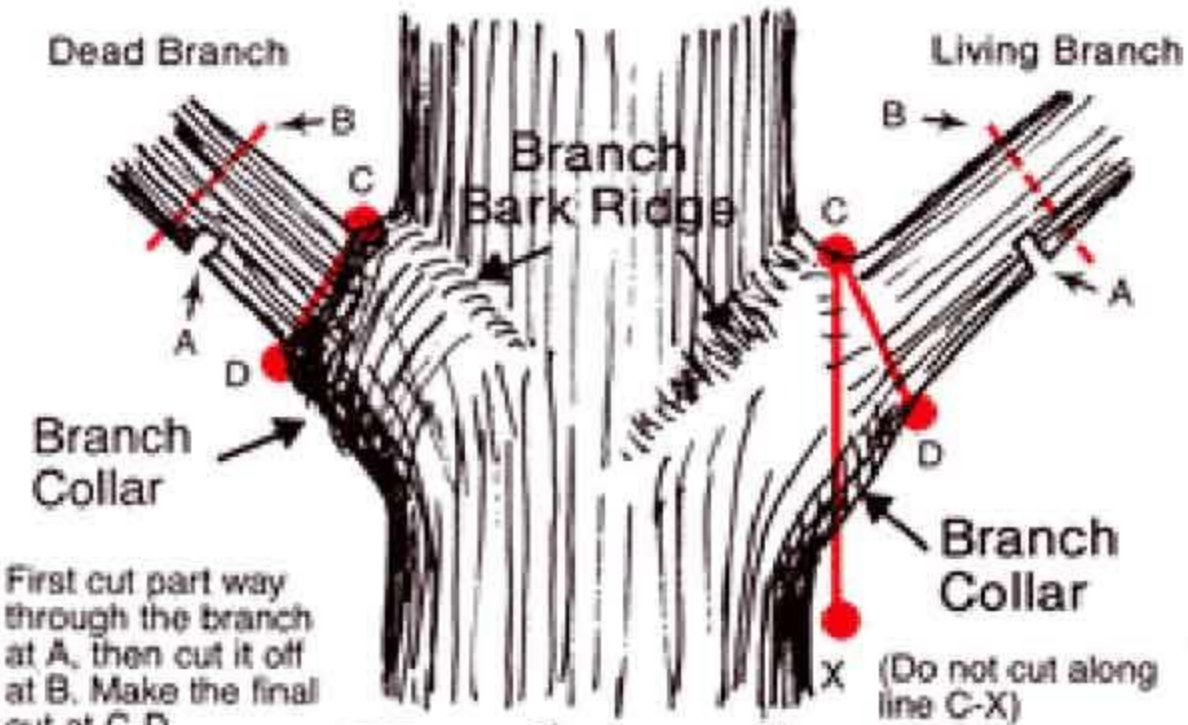


Rejuvenation: Use this technique for shrubs that are overgrown or leggy, and for shrubs that sucker readily from the base. Cut the entire shrub back to a height of four to 10 inches from the ground when the shrubs are dormant. Shrubs that can tolerate rejuvenation pruning are butterfly bush, Annabelle hydrangea, potentilla, and Japanese spirea.

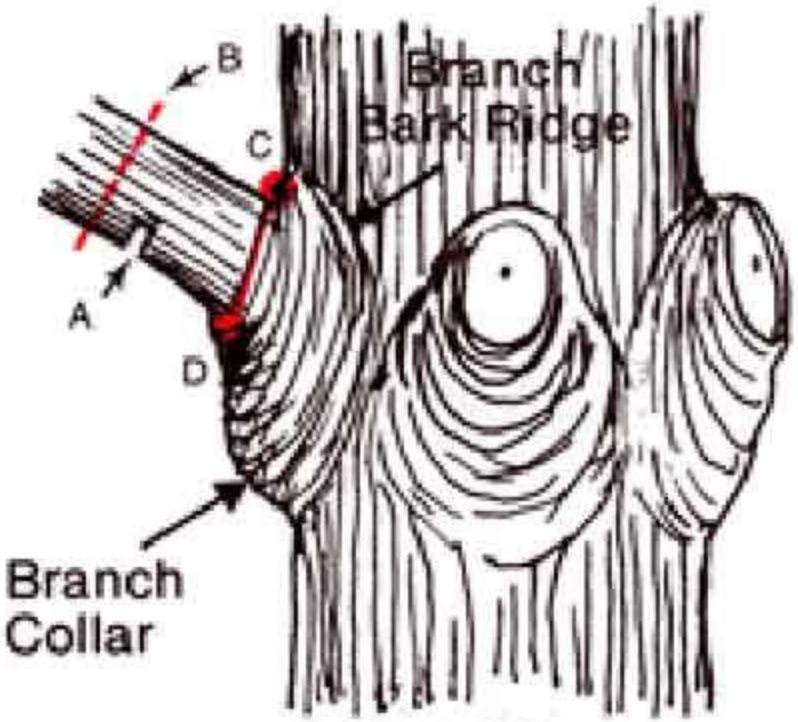
Shearing: This technique involves the removal of new shoots using hedge shears. Shearing should be used only on formal hedges. Examples of shrubs that can be sheared into formal hedges are yews, boxwood, hemlock, and arborvitae. Maintain the base of formal hedges wider than the top to insure adequate light penetration to the bottom of the hedge. Each time you shear a hedge, leave one inch of previous growth to allow for the plant to regrow. Most shrubs should NOT be pruned with hedge shears. For most shrubs, shearing will eliminate the shrub's natural form, will reduce the amount of foliage and flowers in the shrub's interior, and will cause a proliferation of shoots that will make the shrub unsightly.



Proper Pruning Principles



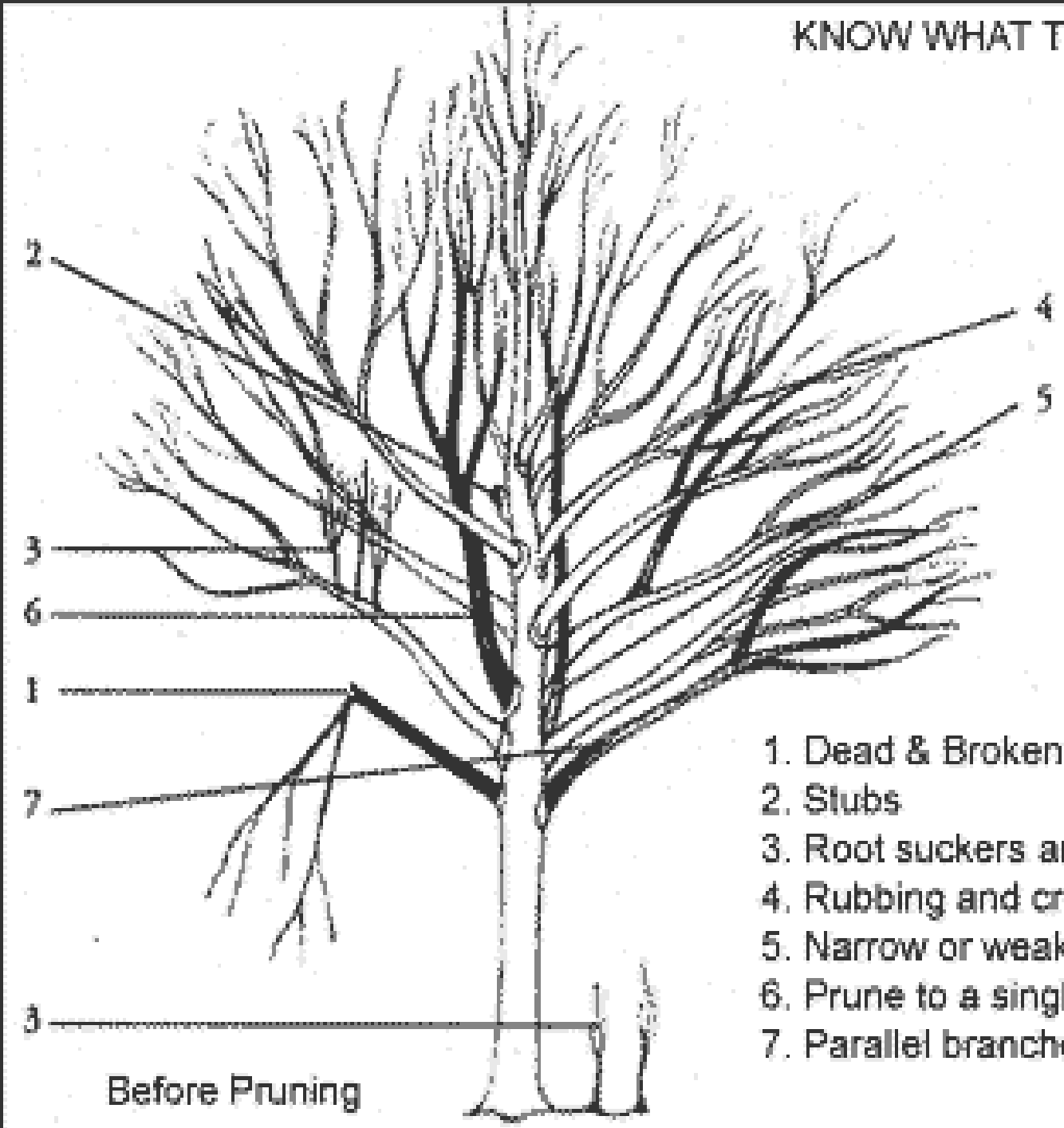
Hardwoods



Conifers

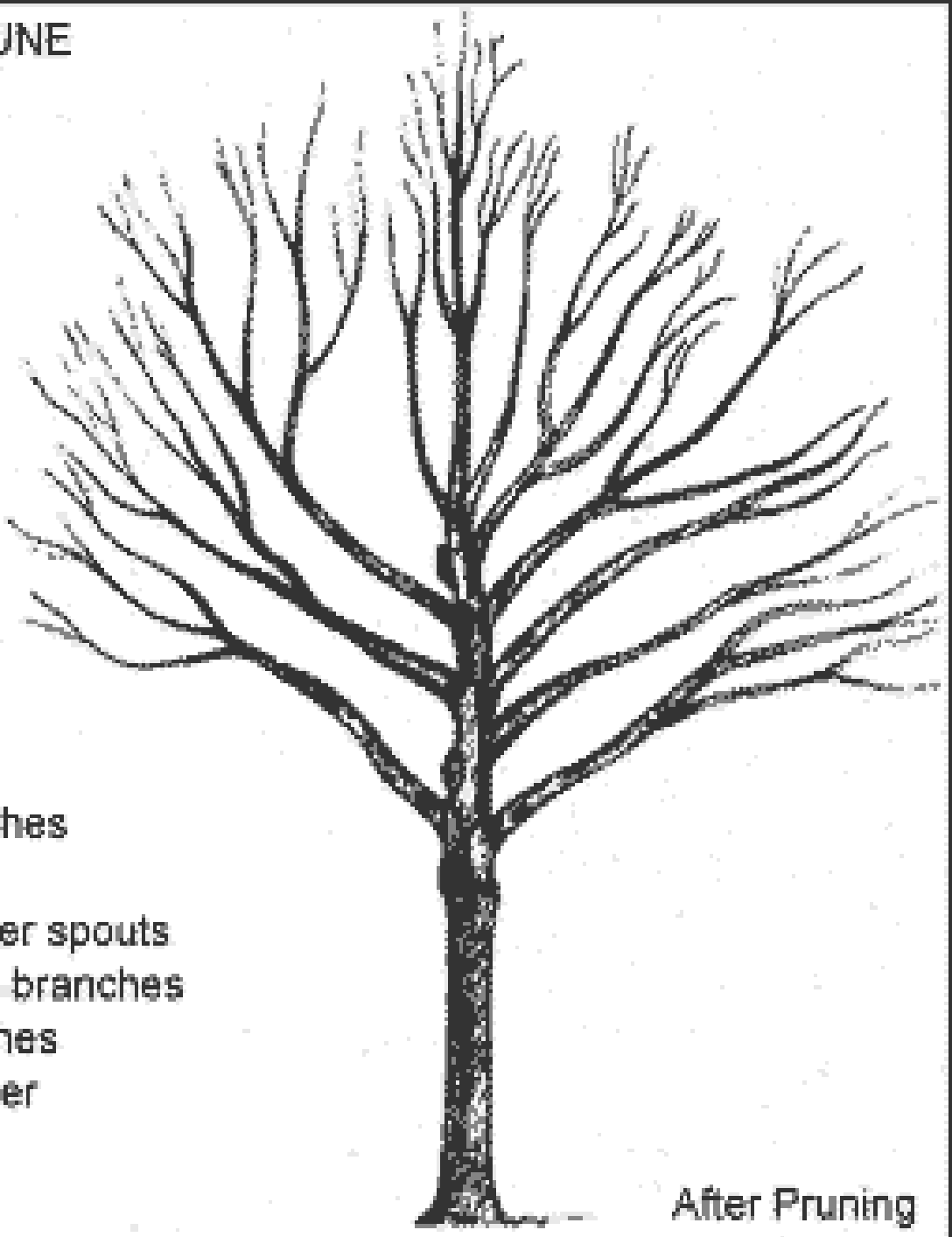
Thanks largely to the work of Dr. Alex L. Shigo and other scientists at the USDA Forest Service's Northeastern Forest Experiment Station in Durham, NH, much is now understood about a tree's natural system of defense against infections from wounds. Based on this knowledge, these methods of making pruning cuts are recommended to help work *with* rather than against a tree's natural tendency to wall off injured tissues and prevent the spread of decay. In these illustrations, final cuts should be made from points C to D. Do *not* cut along line C-X, which is simply an imaginary vertical line to help you locate C-D.

KNOW WHAT TO PRUNE



Before Pruning

1. Dead & Broken Branches
2. Stubs
3. Root suckers and water spouts
4. Rubbing and crossing branches
5. Narrow or weak crotches
6. Prune to a single leader
7. Parallel branches



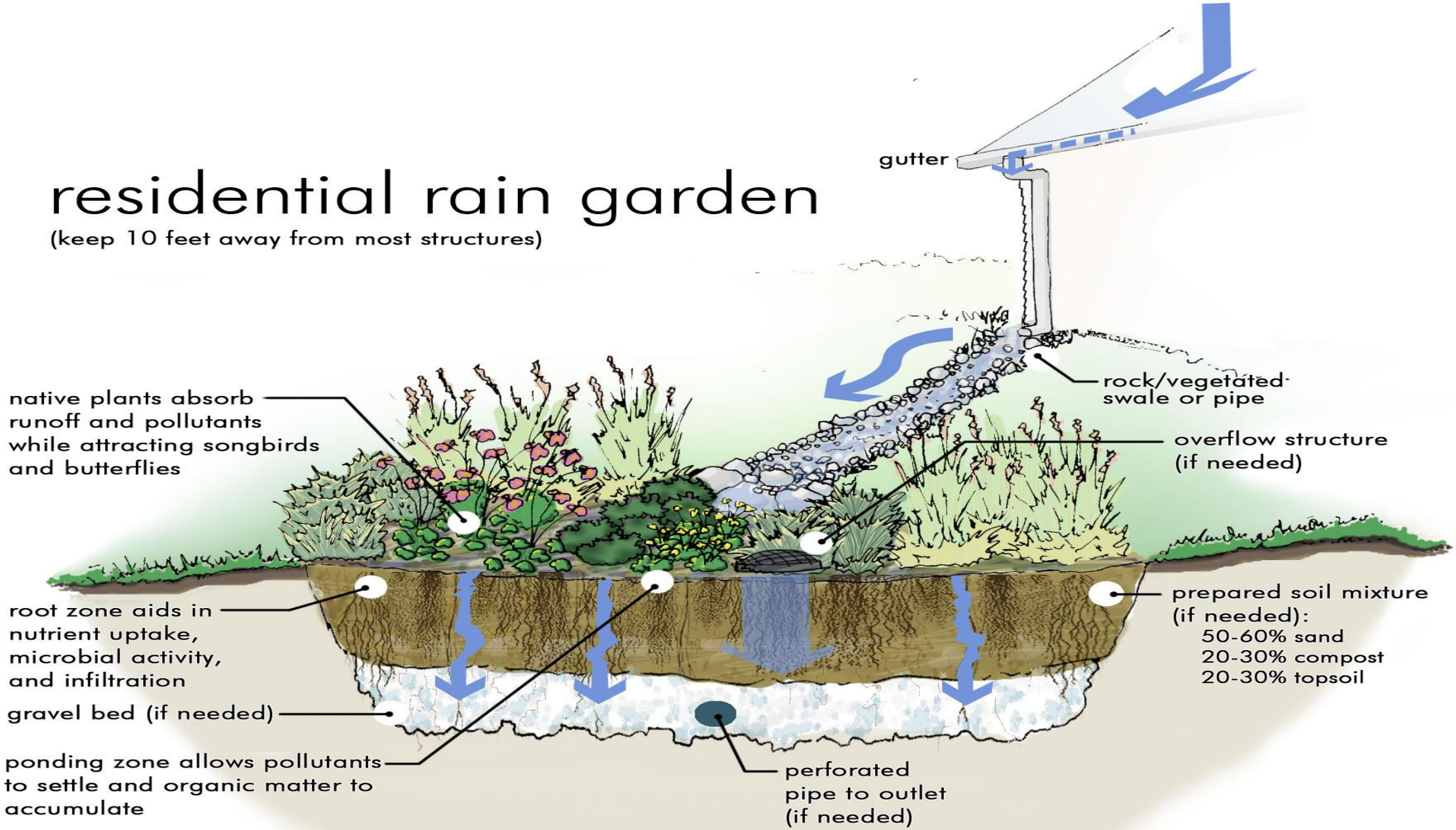
After Pruning

Rain Gardens

- Shallow depression that collects storm water runoff and allows it to infiltrate into the ground
- Filters pollutants, keeping them out of streams, lakes and ground water
- Enhance the beauty of yards and neighborhoods while providing valuable habitats for birds, butterflies and many beneficial insects
- Select native wetland and prairie plants like Joe Pye Weed, Echinacea, Rudbeckia, Iris, etc.
- Watering won't be needed after establishment except during times of extreme drought, but weeding will need to take place regularly during the first few years. After 2-3 years the plantings will out-compete the weeds

residential rain garden

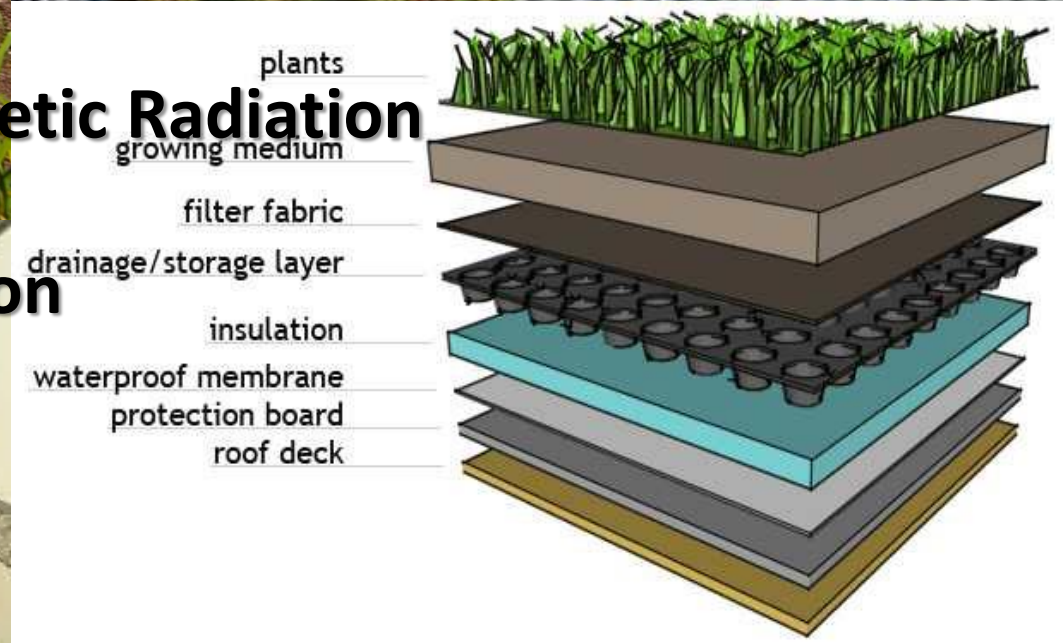
(keep 10 feet away from most structures)

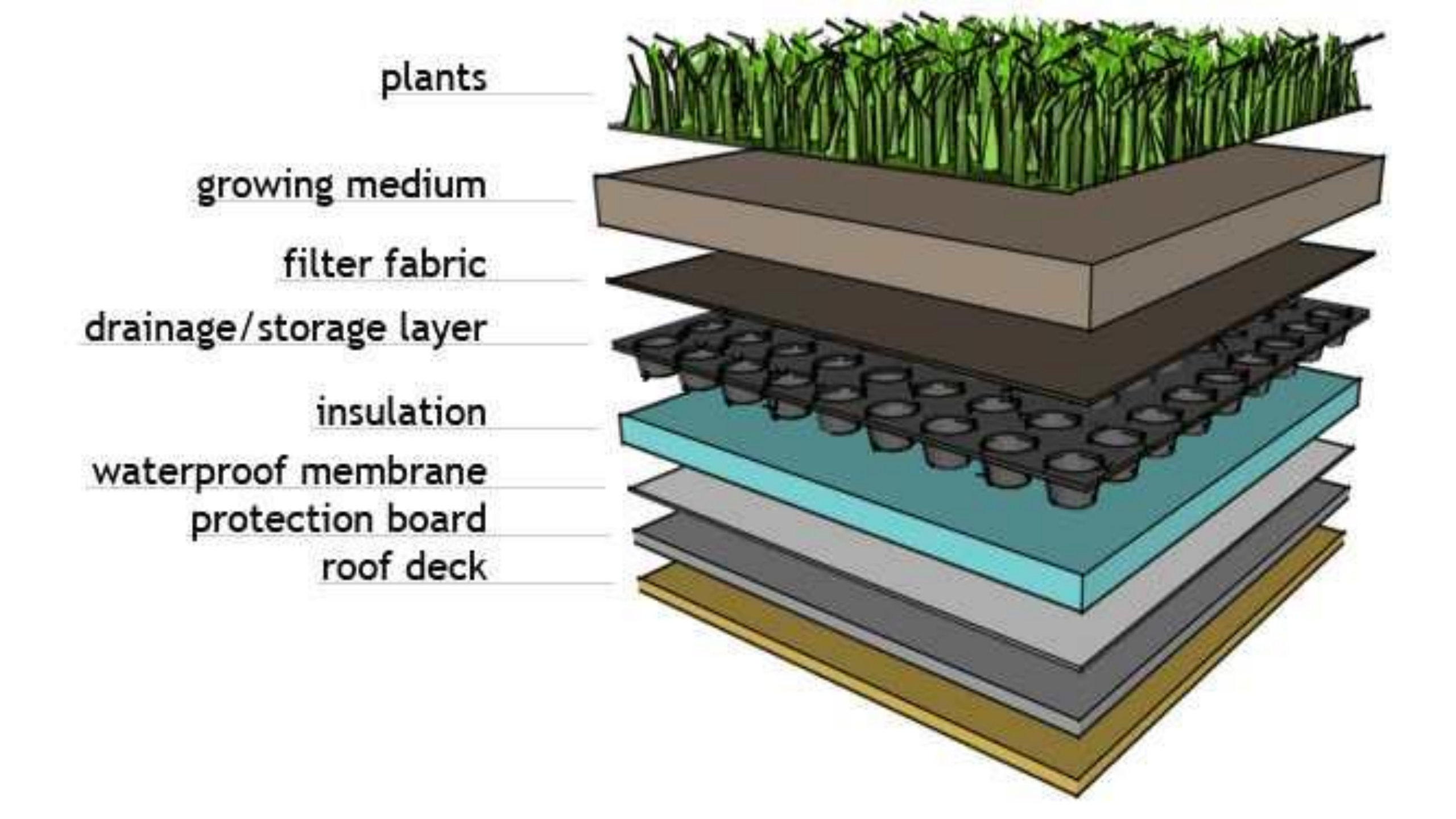


Green Roofs

- Energy Efficiency
- Increased Roofing Membrane Durability
- Fire Retardation
- Reduction of Electromagnetic Radiation

- Noise Reduction
- Marketing




plants
growing medium
filter fabric
drainage/storage layer
insulation
waterproof membrane
protection board
roof deck

Thank you!!!