"PROTECTING THE WATERSHED“

best practices for gardeners

Clear Lake Cottagers' Association

of Field

Bob Jolley

Gardening brings Benefits

(Plant for Life Environmental Report U.K.)

Community Gains

- **Environmental Quality – reduces carbon dioxide**
- **Oxygenates the air**
- **Helps remove pollutants from the air**
- **Helps absorb rainfall & anchor soil**
- **Can increase Property Values**

Benefits to Gardener

- Exercise, stress reduction, relaxation
- Research “accessibility to nature” most important factor –after the marital role – life satisfaction

WHAT CONCERNS GARDENERS?

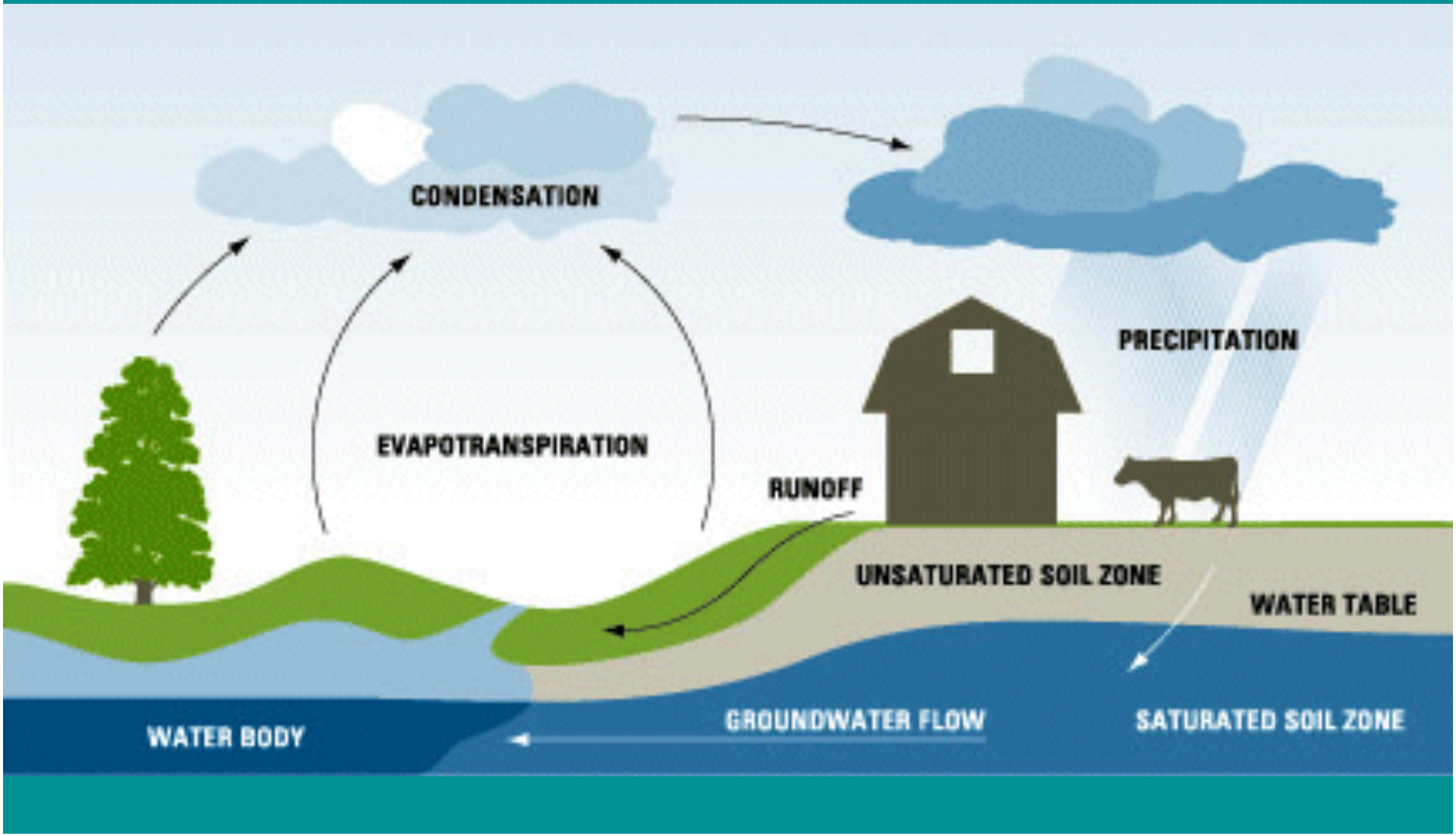
- 65% of people are concerned about climate change
- 44% are concerned about use of pesticides, fertilizers and chemicals
- 90% believe we should garden in a way that benefits the environment, but
- Only 65% are knowledgeable about environmental gardening

WATER – A VALUABLE RESOURCE THAT MUST BE PROTECTED

WHY SHOULD GARDENERS BE CONCERNED ABOUT OUR WATER?

- One third of the Earth's fresh water exists within and along Ontario borders
- 250,000 fresh water lakes & countless rivers and streams support a multitude of plants and animals
- Water is the basis for our prosperity, our growth and our quality of life.

HOW DOES THE WATER CYCLE WORK?



WHAT WE KNOW ABOUT PESTICIDES

- Pesticides : defined - herbicides, insecticides etc. designed to control or kill plants / insects
- toxic to many forms of life
- can accumulate in the food chain.
- contain ingredients known or suspected of causing cancer, and

WHAT WE KNOW ABOUT PESTICIDES

- Estimate - over 98% reaches a destination other than the target when sprayed
- 35% reaches an unintended destination when spread
- Enter water sources via rainfall & runoff
- Enter groundwater by percolating through the soil

DID YOU KNOW?

Recent research indicates homeowners apply up to

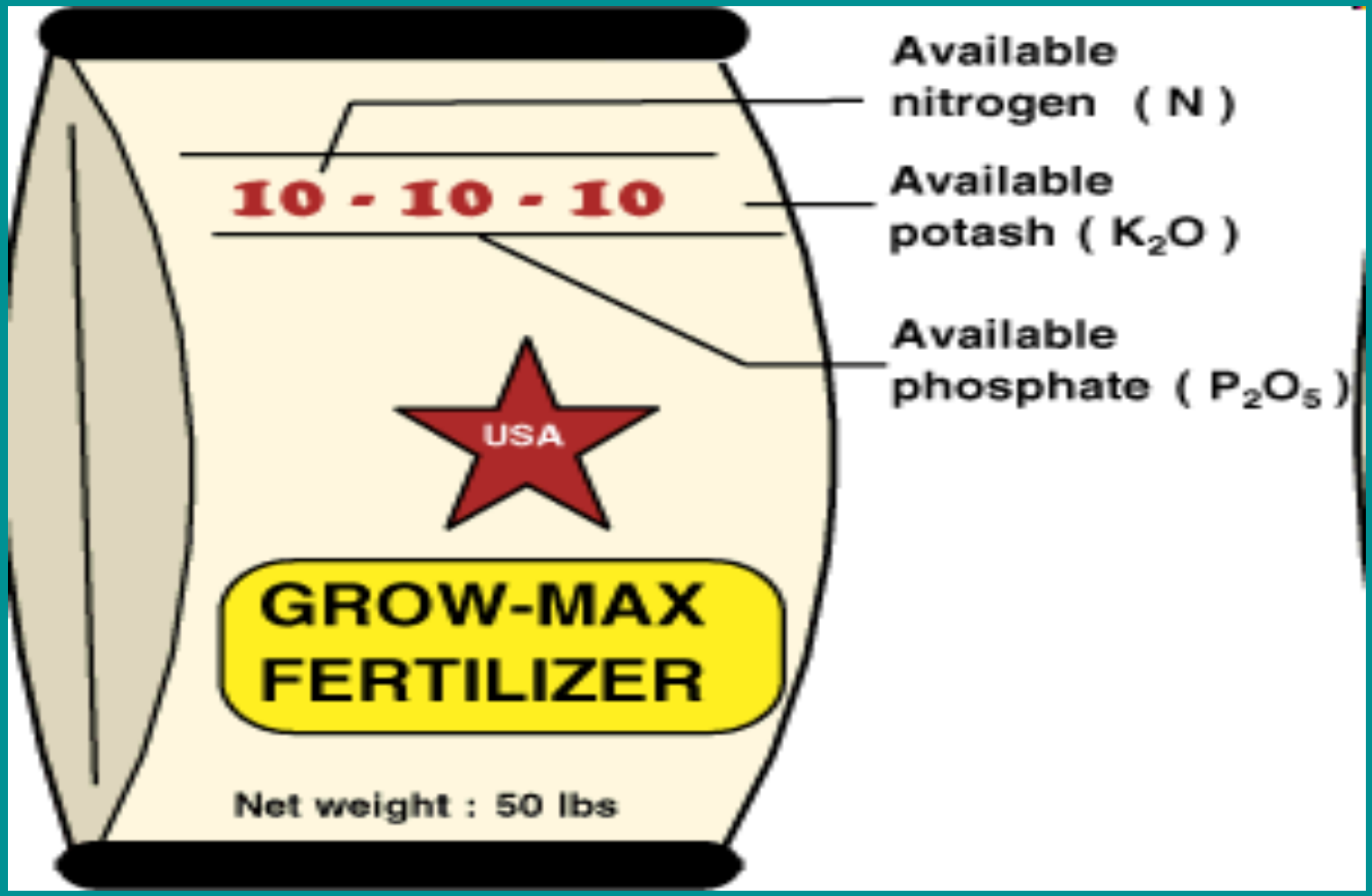
7 X MORE PESTICIDE

per acre than those used in agriculture!

HOW DO PESTICIDES AFFECT OUR WATER SOURCES?

Pesticides and other substances can contain Phosphorus and Nitrogen . These nutrients assist and promote aquatic plant growth.

Understanding the Fertilizer Label



PHOSPHORUS

- Phosphorus is the nutrient that most greatly affects aquatic plant growth. Even a small amount of phosphorus, measured in parts per billion, can promote the growth of algae and other aquatic plants. Large masses of algae are called **algal blooms**
- Algal blooms exhaust the phosphorus, then die and decompose
- Oxygen is removed from the water - killing fish and other organisms

BLUE-GREEN ALGAE

PHOSPHORUS & ALGAE - HOW BIG A PROBLEM IS IT?

- "The problem is that the equivalent of just 20 cents in $10 million is the threshold at which algae become a nuisance.
- Twenty parts per billion of phosphorous is four or five times the normal. A bag of 10-10-10 fertilizer goes a long way on a garden and even further in a lake"

Dr. David Pearson,
Professor of Earth Sciences Laurentian University
North Bay Nugget 7 Sept 2007

THE SUDBURY STAR
Your news. Today.

Green Poison: Toxic blooms plague lakes (blue-green algae) Nov. 8, 2008

McFarlane Lake resident Dieter Schoenefeld shows the blue-green algae that is now a common occurrence on his shoreline. The sometimes toxic blooms are being reported in lakes across Ontario. A bloom was confirmed in Ramsey Lake in September.

"Blooms tend to flourish in nutrient-rich water bodies, which contain a lot of phosphates from things like detergents and fertilizers" – Sudbury Health Unit

3 - TROPHIC LEVELS

- Oligotrophic – not enriched, few nutrients – rarely experience algal blooms
- Mesotrophic — moderately enriched, some nutrients - moderate algal blooms
- Eutrophic — enriched, higher levels of nutrients – persistent algal blooms

TROPHIC LEVELS IN WEST NIPISSING

(2006 Draft Official Plan)

LAKE	TROPHIC LEVEL	LAST TEST
Clear Lake	Oligotrophic	1990
Tanner Lake	Oligotrophic	1995
Chebogomog Lake	Oligotrophic	1987
Tomiko Lake	Oligotrophic	1989
Duff Lake	Mesotrophic	1988
Cache Lake	Mesotrophic	2000
Deer Lake	Mesotrophic	1995
Lake Nipissing	Mesotrophic	2000
Muskosong Lake	U/K	

ARE LAKEFRONT PROPERTIES THE ONLY CONCERN?

Source Water Protection Group

- Local creeks and watercourses receive the drainage from urban streets and also any waste materials and toxins that are introduced to the storm sewers.

AN ATTEMPT TO CONTROL STORM RUN OFF

WHAT ROLE DOES SOIL CONSISTENCY PLAY ?

Soils with a high water holding capacity

- absorb large amounts of water,
- minimize the potential for runoff and erosion
- store water for droughts

Water holding capacity can be increased by

- Increasing soil profile – adding a higher percentage of organic matter
- Maintain foliage growth, and
- Preventing soil compaction

Storm water Pollution Prevention Handbook 2001

- Storm water and urban runoff are not generally treated; therefore, as these surface flows reach local bodies of water, they contain all of the pollutants that accumulate from everyday living and commerce.

- **By making changes in daily habits, individuals can protect the health of local creeks, streams, rivers, lakes, bays and oceans.**

WHAT CAN ALL GARDENERS DO TO PROTECT OUR WATER?

- Restrict fertilizers / pesticides to the target areas (sweep walks, drives, etc.)
- Restrict runoff (ditches, storm sewers,etc. that will eventually discharge nutrients chemicals, grass clippings, foliage, etc.) into water sources
- Do not discard or pour “nutrient rich” products in sewers, ditches, etc.
- Adopt conservative water measures to reduce unwarranted use of water

WHAT ADDITIONAL STEPS CAN WATERFRONT GARDENERS TAKE?

- Plan your landscape & garden to ensure there is distance and a vegetation buffer between the work area and the water (RIVET OF LIFE)
- Use plants common to area
- Prevent foliage / cut grass from falling directly into a water source
- Clean tools, etc. a distance away from the waterfront to prevent runoff / leaching of nutrients into the water
- Ensure your septic / grey water is properly treated and not discharging or leaching into the water source

ONE OF THE SUREST WAYS GARDENERS CAN PROTECT WATER SOURCES

GO ORGANIC

Organic products and practices :

- Enhance organic activity in the soil
- Release nutrients slowly reducing damage potential
- Use up to 4X less water
- Pollute less, and
- Preserve the ecosystem

Ontario

MINISTRY OF THE ENVIRONMENT

Banning Pesticides

Ontario's lawns, gardens, school yards and parks will be a lot healthier beginning Earth Day, April 22, 2009. That's the day the province's cosmetic pesticides ban takes effect.

The McGuinty government believes the use of pesticides to control pesky Weeds and insects for purely cosmetic reasons is an unnecessary risk to our families and pets especially when you can have a healthier lawn and garden without chemicals.

We have listened to medical experts – like the Canadian Cancer Society who have made a convincing case for reducing our exposure to pesticides particularly children who are generally more susceptible to the potential toxic effects of pesticides.

How does the Ontario ban affect me?

- the ban is detailed in Ontario Regulation 63/09 made under the Pesticides Act
- contains exceptions for public health and safety
- you can still buy certain pesticides to protect your family , pets & home against insects - poisonous plants , etc.
- you can purchase and use biopesticides to control pests and lower risk pesticides (such as acetic acid) to manage weeds, insects and plant diseases
- you can take leftover banned pesticides to your local municipal hazardous or special waste collection sites for proper disposal - never pour down the drain

THE TRANSITION TO ORGANIC GARDENING

Paul Tukey, People Places and Plants
Safelawns.org - For a Healthier Planet

FOLLOW THE 12 Steps

1. GO ORGANIC – COLD TURKEY
   “Feed the soil…it will feed the plants”

2. GET YOUR SOIL TESTED

"Find out what is lacking or required to stabilize the soil" (most commonly overlooked step)

BENEFITS OF SOIL TESTING

- **Testing measures levels of elements (phosphorus, potassium, calcium, magnesium etc) and soil pH**
- **Too much lime – high soil pH - less nutrients available to plants**
- **Appropriate pH level (6.0 to 6.5) optimizes affect of nutrients**
- **quantity of available nutrients in the sample determines the amount of fertilizer required**
- **When gardeners apply only as much fertilizer as is necessary, nutrient runoff into surface or ground water is minimized and natural resources are conserved.**
- **Saves money**

3. TOP DUST WITH COMPOST

- Compost – slowly releases nutrients into soil – kills harmful pathogens and nurtures good ones
- Can be made by gardener from garden & kitchen waste, or purchased locally

4. APPLY LIMESTONE OR GYPSUM IF REQUIRED

Calcium level should be 7X greater than magnesium

- Limestone raises pH
- Gypsum (calcium / sulphur) lowers pH & magnesium level

WHY LIMESTONE?

Lime can make soil less sour

- nutrients are more readily available to plants
- supplies calcium and magnesium to plants
- increases microbial populations - convert nitrogen and sulfur to forms that plants can use
- Enhances physical properties of the soil - promotes water and air movement

5. OVERSEED IN SPRING & FALL

6. BREW & APPLY COMPOST TEA (each month)

7. CUT LAWN HIGHER – MULCH & LEAVE CLIPPINGS

8. ALLOW APPROXIMATELY 5% CLOVER GROWTH IN LAWNS[1]

"Clover is a good source of nitrogen"

9. APPLY CORN GLUTEN IN SPRING

“ corn gluten acts to discourage weeds if applied early..before growth…do not use gluten on newly seeded lawns”

10. APPLY ORGANIC FERTILIZER

11.WATER INFREQUENTLY AND DEEPLY

Practice Garden Water Conservation

Municipal watering bans are common during Canadian summers. Gardeners can help conserve this valuable resource, and still maintain beautiful lawns and gardens by practicing simple techniques.

- *Your lawn only needs 2.5 cm a week to stay healthy. Use a rain gauge or even a soup can to measure.*
- *Watering your lawn in late afternoon is best to avoid loss due to evaporation*
- *Water infrequently but thoroughly. Frequent watering encourages roots to remain close to the surface. During drought conditions, your lawn is more susceptible to browning because roots can't reach moisture deeper in the ground.*
- *Connect your downspout to a barrel or cistern to capture rainwater for lawn and garden use.*
- *Leave grass clippings on your lawn.*
- *Add mulch on all bare soil surfaces.*

12. RAKE & CLEAN LAWN IN FALL

4 THINGS TO REMEMBER

1. DESPITE WHERE I GARDEN – WHAT I DO AFFECTS THE WATERSHED.
2. THE LESS I DO TO UPSET NATURE – THE GREATER THE CHANCE THAT OUR WATERSOURCES WILL CONTINUE TO THRIVE.
3. I CAN REDUCE UNWANTED RUNOFF / LEACHING INTO WATER SOURCES BY MAINTAINING HEALTHY SOIL IN MY LAWN AND GARDEN
4. ORGANIC PRODUCTS / PRACTICES PROVIDE MY GREATEST OPPORTUNITY FOR SUCCESS.

ORGANICS - LAST LOOK

1. Feed your soil
2. Test it
3. Compost
4. Maintain calcium /magnesium
5. Overseed
6. Compost tea
7. Mow high/mulch and leave clippings
8. Some clover is healthy
9. Corn Gluten / mechanical weed control
10. Organic fertilizer
11. Water wisely
12. Rake , clean and mow lawn in fall

NATURE HAS PROVIDED US WITH THE RESOURCES REQUIRED TO PROTECT OUR WATERSHED LETS USE THEM