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2024 Achievement Winner: Bruce & Sara Knudson 'Mountain View Angus'

Congratulations to Bruce and Sara on being selected as Turtle Mountain SCD's 2024 Achievement Award Winner in Conservation! The Knudson's will be honored at the NDASCD Annual Convention in Bismarck on November 25th & 26th. The Knudson's, along with other achievement winners across the State, will have an aerial photo taken of their farmstead, along with a plaque and banquet to celebrate their achievements.



Here is a brief write-up of just some of the accomplishments made by the Knudson's and why they were selected as this year's winner.

Bruce and Sara Knudson live on the original farmstead of Bruce's grandpa, Arthur Knudson established in the 1930's. Back in the day, the Knudson barn held many dances for the local Bottineau County residents and the "top" half of the barn is still utilized today, but I don't think you'll find a pair of dancing shoes in there, unless Bruce and Sara sneak out for a midnight waltz...

Bruce and Sara have two daughters, Amy (Sand) and Jessica (Hunter). Amy Sand is the NRCS District Conservationist for Bottineau County and has helped her parents over the years both in physical labor, and with her knowledge in conservation, to help make beneficial decisions for the Knudson farm. Jessica Hunter is also active on the family farm, plus owning her own farm and ranch.

Bruce and Sara have been operating a diversified grain and livestock operation for 44 years. They raise registered Angus cattle and grow a variety of crops, which include some cover crops. In fact, they were the first to bring back cover crops in Bottineau County around 2008/2009.

Turtle Mountain SCD Board Meetings:

- Board Meetings are held the third Wednesday of each month.
- Board meetings are open to the public, but please call ahead to make sure meeting dates/times have not changed.
- Board meetings are located in the conference room of the Bottineau USDA building.

Mountain View Angus

For 25 years, they practiced no-till farming and refrained from using insecticides and fungicides, Sara is especially proud of her dung beetle production from doing so. The cattle are rotationally grazed and limited to 10 to 20 days on each pasture. The Knudson's have planted numerous, conservation tree and shrub establishments, wildlife plantings, and field breaks throughout the years. In 2005, they received the 'Friend of Wildlife' award from the Bottineau Wildlife Club.

In 2023, they were selected as NDSU 'Harvest Bowl' recipients for agriculture in Bottineau County. Bruce is currently supervisor for the Turtle Mountain Soil Conservation District, where he has also served as chairman. He previously served on the Farm Bureau board, 4-H Council, FFA, Church Council, State Soil Conservation Committee and Kiwanis. Sara, when not busy on the farm/ranch, helps with the local food pantry, farmers market, and the domestic violence center in Bottineau. Sara was a 4-H leader for 35 years and she continues to help with activities. Sara enjoys making her homemade soap from her Jersey cows, which she named "Prairie Meadows". Sara has also milled her own grains for many years. In fact, Amy told me that if there happened to be an apocalypse, we could survive just by staying with Sara and all her hands-on knowledge and trades! I think it's safe to say, that with all of their hard-work and passion they have towards conservation, any one of us would be safe with them!

Congratulations once again to the Knudson's!



Aerial photo of the Knudson Farmstead



One of Sara's Jersey calves



Amy, Sara, Bruce, and Jessica



Bruce & Sara Knudson at the 2023 NDSU Harvest Bowl

INSECT GALLS ON TREES *By Laura Gardner, Master Gardener in Training*

I was out for a walk earlier this summer and noticed that several trees in my neighborhood have lumps on their leaves, leaf stalks, shoots, or at the ends of their branches. At first glance you might be alarmed and think they are diseased, but many are the homes of tiny insects such as aphids, mites, sawflies, psyllids, and midges. They are often quite numerous, and they come in different shapes and sizes. A gall is formed through the expansion of plant cells—similar to a tumor. This may be triggered by organisms such as viruses, bacteria, fungi, nematodes, or insects. Insects induce the galls through actions such as oviposition (inserting the egg into the plant tissue), the release of chemicals by the female and eggs, and through feeding. It is a shelter for the young and protects them from predators. While sometimes causing leaf deformity, in most cases, galls are a cosmetic concern and do not harm the tree.

Here are a few you may encounter that are caused by insects:

These variable shaped galls specific to *Populus deltoids* (Eastern cottonwood) are the homes of an aphid called *Mordwilkoja vagabunda* (Poplar Vagabond Aphid). New galls are a light color but become darker with age. Each gall releases upwards of 2,000-winged offspring in mid-July to early August. Sounds like it could have been the inspiration for a science fiction novel or movie.



Pachypsylla celtidismamma (Hackberry Nipple Gall Maker) is a Psyllid (Jumping Plant Lice) that forms round, often clustered galls on the underside of *Celtis* (Hackberry) trees. Adults spend the winter in cracks of the tree bark itself or even in nearby buildings.

The Eriophyid mite, *Vasates quadripedes* (Maple Bladder Gall) forms on *Acer* spp (Maple) such as the upper leaves of this *Acer x freemanii* 'Autumn Blaze' (Freeman Maple 'Autumn Blaze'). The galls first appear as green, then turn to red, and finally black. The mites overwinter in the creases of the tree's bark.



So, if your trees have strange growths on them, check out the wonderful web site <https://gallformers.org>. There you can identify galls by their specific host trees, the form of the galls, and their location on the trees.



Turtle Mountain Soil Conservation District
514 Thompson St. #2
Bottineau, ND 58318
701-228-3611 ext. 3

Name: _____

Address: _____

Phone: _____

Order Date: _____

2025 CONSERVATION TREES AND SHRUBS 2025

*Turtle Mountain SCD accepts no responsibility regarding survival of planting stocks and makes no provision for replacements.
 *All payments are non-refundable and are due at the time of pick up.
 *Any trees not picked up before or during the required pick up time will be destroyed.
 *By placing your initials here states that you have read and fully understand the terms and conditions of the above. _____

Quantity	Species	Potential Height	Growth Rate	Life Span	Description
Large Trees & Conifers					
_____	Black Hills Spruce	30-60'	MED	LONG	Large conifer, very dense and pyramidal when young
_____	Black Walnut	35-60'	MED	LONG	Large oval to rounded, somewhat open-crowned tree
_____	Boxelder	30-60'	FAST	LONG	Relatively fast-growing, medium to tall tree of irregular form
_____	Bur Oak	40-70'	SLOW	LONG	Large, long-lived tree with a broad crown at maturity
_____	Colorado Blue Spruce	30-65'	MED	LONG	Broad conifer, pyramidal tree with stiff horizontal branches
_____	Cottonwood, Native	50-99'	FAST	LONG	Largest, fastest growing tree in ND, native to moist soils
_____	Cottonwood, Male	50-99'	FAST	LONG	Largest, fastest growing tree in ND, native to moist soils
_____	Golden Willow	40-50'	N/A	N/A	Large low branching tree with a broad round crown
_____	American Linden	50-70'	MED	LONG	Medium to large, native, hardy shade or windbreak tree
_____	Little-Leaf Linden	30-50'	MED	LONG	Medium to large, smaller leaves than American Linden
_____	Hackberry	40-60'	MED	LONG	Medium sized native tree with unique stucco-like bark
_____	Hybrid Poplar	40-60'	FAST	MED	Narrow-crowned, fast growing, short lived tree
_____	Silver Cottonwood	40-60'	FAST	MED	Medium to large, green top leaves with white pubescent under
_____	Ponderosa Pine	50-70'	MED	LONG	Large conifer, pyramidal when young, irregular oblong with age
_____	Paper Birch	30-55'	MED	MED	Reddish-brown bark, turning papery white with age
_____	Scotch Pine	25-50'	MED	LONG	Medium to large conifer, orange-brown peeling bark
_____	Siberian Larch	30-60'	MED	LONG	Large pyramidal conifer, needles turn yellow and shed in fall
_____	Quaking Aspen	25-60'	FAST	MED	Native to Turtle Mountains, black/white bark, small, round leaf
Shrubs & Small/Medium Trees					
_____	Buffaloberry	6-14'	MED	MED	Medium, thorny shrub, silver foliage, red berries used for jellies
_____	Caragana	6-14'	MED	LONG	Tall, long lived, tolerant shrub with yellow flowers and pods
_____	Chokecherry, Amur	12'-30'	MED	MED	Attractive bark, yellow fall color, black fruit, tiny white flowers
_____	Common Chokecherry	12-25'	MED	MED	Medium suckering hardy tree, fruit used for jellies and jams
_____	Eastern Redcedar	30-45'	SLOW	LONG	Small conifer with a short trunk and irregular, pyramidal crown
_____	Hardy Apricot	10-15'	MED	MED	Small, fast-growing tree with white flowers and edible fruit
_____	Hawthorn	15-20'	SLOW	MED	Small dense tree with white flowers, red fruit, and thorns
_____	Maple, Amur	15-20'	MED	MED	Small tree with bright red fall colors susceptible to 2,4-D
_____	McDermand Pear	25-35'	MED	LONG	Hardy pear, white flowers, semi-glossy foliage and edible fruit
_____	Midwest Crab	10-25'	MED	LONG	Small to medium shrub, white flowers, yellow to red fruit
_____	Native Plum	8-10'	MED	SHORT	Native tall shrub/small tree, suckering, thorny, edible fruit
_____	Ohio Buckeye	20'-40'	MED	MED	A medium-sized tree with an oval to rounded crown.
_____	Rocky Mt. Juniper	20-40'	SLOW	LONG	Small to medium conifer, dense pyramidal crown, blue berries
_____	Seaberry	10-15'	MED	MED	Sometimes short-lived shrub, yellow flower, orange edible fruit

Shrubs & Small/Medium Trees Continued

Quantity	Species	Potential Height	Growth Rate	Life Span	Description
_____	Schubert Chokecherry	12-25'	MED	MED	Similar to Common C., but with purple foliage, edible fruit
_____	Siberian Crabapple	10-25'	MED	LONG	Small flowering tree, white flowers, yellow or red fruit
_____	Elderberry	8-15'	MED	LONG	Multi-stem, white flowers w/ purple berries, good for jam/syrup
_____	Black Chokeberry	2-6'	N/A	N/A	White flowers, red-black berries, red autumn color
_____	Common Lilac	8-12'	MED	LONG	Medium to large suckering shrub, white to purple flowers
_____	Cotoneaster	2-12'	MED	SHORT	Large shrub, pinkish-white flowers with showy red fruit
_____	Black Currant	3-6'	MED	SHORT	Small shrub, with very dark purple, edible fruit
_____	Golden Currant	3-6'	MED	SHORT	Small shrub with yellow flowers and tart but edible fruit
_____	Hansen Hedge Rose	4-6'	MED	MED	Medium to tall shrub rose, pink flowers and red rose hip fruit
_____	Hazel - American	4'-12'	MED	MED	Medium to tall shrub, suckering, wildlife friendly, edible nut
_____	Juneberry	6-15'	SLOW	MED	Medium to tall suckering shrub, white flowers, dark edible fruit
_____	Nanking Cherry	6-10'	MED	SHORT	Fast-growing, short-lived shrub, white flowers, edible red fruit
_____	Redosier Dogwood	7-10'	FAST	MED	Medium to large spreading shrub, red bark, white flowers
_____	Silky Dogwood	8-12'	N/A	N/A	Medium sized shrub, clustered white flowers, blue fruit
_____	Russian Almond	3-5'	SLOW	SHORT	Low suckering shrub, pink to rosy flowers, small almonds
_____	Sandbar Willow	6-10'	FAST	MED	Medium sized shrub native along riverbanks, yellowish flower
_____	Sand Cherry	2-4'	N/A	N/A	Small, fast-growing, short-lived shrub, edible fruit.
_____	Honeysuckle	6-9'	MED	MED	Medium sized shrub, with pinkish-white flowers, likes many soils
_____	Sumac	6-8'	MED	MED	Spreading shrub, scented leaves, yellowish flower, red fruit
_____	Villosa Lilac	6-10'	MED	MED	Blooms later than common lilac, non-suckering, pink flowers
_____	Woods Rose	3-4'	MED	MED	Suckering, thorny rose with pink flowers and rose hips



**5 TREE/SHRUB MINIMUM ON ALL ORDERS!
-THANK YOU -**



❖ ALL TREES AND SHRUBS ARE BARE ROOT STOCK, CERTAIN SPECIES ARE AVAILABLE IN CONTAINER/PLUGS
BARE ROOT STOCK ARE \$2.00 EACH. CONTAINER/PLUGS ARE \$2.50 EACH.

**MOST OF THE TREES/SHRUBS COME IN BUNDLES OF 25 COUNT,
IF YOU ORDER A BUNDLE, YOU WILL GET A DISCOUNT = **\$40.00/BUNDLE****

❖ CONSERVATION STOCK GENERALLY RANGES FROM 12 TO 24 INCHES IN SIZE.
LARGER SIZES OF SOME SPECIES ARE AVAILABLE. PRICES WILL VARY DEPENDING ON SIZE.

❖ SOME SPECIES NOT LISTED HERE MAY BE AVAILABLE UPON REQUEST.
PRICES WILL VARY IN ACCORDANCE WITH NURSERY PRICES.

Weed Barrier/Fabric Maintenance:

Now's a great time to get out and check on your tree rows/shelterbelts! If you have weed barrier fabric installed on any of your tree rows, you'll want to inspect the size of any "slits" or "cuts" made into the weed barrier. If you notice any of the weed barrier rubbing tightly against the trunk of the tree, you'll have to adjust that cut or slit with a box cutter or sharp knife. This will prevent the weed barrier from "girdling" the trunk of the tree, which ultimately will kill your tree, if not prevented. When properly installed/maintained, weed barrier fabric is a great add-on to any newly planted tree row, by helping control weeds, and keeping the moisture competition down between any grasses and the young tree seedlings. Any shelterbelt planting, with or without weed barrier, should not be a "plant it and forget about it" project, and will require some maintenance and care.



Fall Site Prep:

If you are having the District plant trees for you in the Spring of 2025, now is a great time to get started on your site preparation. Site preparation is a critical factor for tree planting success. Properly prepared sites are worked (tilled) 6-8" in depth, with no big clumps of soil/sod. If your tree site was originally sod/grass area, you will want to chemically kill off any grasses beforehand, let the chemicals work for a week or so, then till the area really well. A good rule of thumb we go by is: "Work your site like you would before planting a garden." No-till methods are becoming very popular and beneficial to the soil, but our equipment requires that first initial, ground-breaking process for a successful planting.

Please contact Linda or Kari if you have any questions regarding your tree plan at 228-3611 ext. 3

"Now is a great time to get out there and check on your tree rows/shelterbelts."

NRCS News

Annual Forages for Grazing Systems

NRCS Practice code – 810

Annual forages are planted as part of a grazing system forage budget, to be harvested by haying or grazing. They are grown to increase forage supply during periods of low forage, extend the grazing season, provide temporary erosion protection while reestablishing perennial forage, reduce excess soil nutrients, improve soil microbial life, or improve soil aggregate stability. Annual forages are not to be harvested as grain, fiber, vegetable, or oilseeds. This practice is used on cropland or annually planted pasture and does not apply to rangeland, forest, or grazed forest.

When utilizing annual forages on cropland, enhance crop diversity by adding crop types which are missing in the cash crop rotation (cool-season grass, cool-season broadleaf, warm-season grass, warm-season broadleaf). Diverse species mixes improve the potential for a good, productive stand and positive impacts on multiple resource concerns. All annual forage plantings must contain a minimum of three species from two functional groups. Some example mixes could be:

Grazing

Sorghum/Sudan (warm season grass)

Red Clover (leguminous broadleaf)

Turnip (grazable broadleaf)

Haying

Oats (cool season grass)

Peas (leguminous broadleaf)

Millet (warm season grass)

The annual forages practice will be used in a manner that maintains sufficient ground cover to prevent erosion while maintaining 50% of the above ground biomass by weight is required at the end of the season. In order to assure sufficient time for growth to provide adequate available quality and quantity of forage, annual forages must be planted by July 1st . Grazing days will be calculated based on the biomass production and risks associated with selected species.

If you are interested in more information on Annual Forages for Grazing Systems, please contact your local NRCS office.





Timely information for agriculture

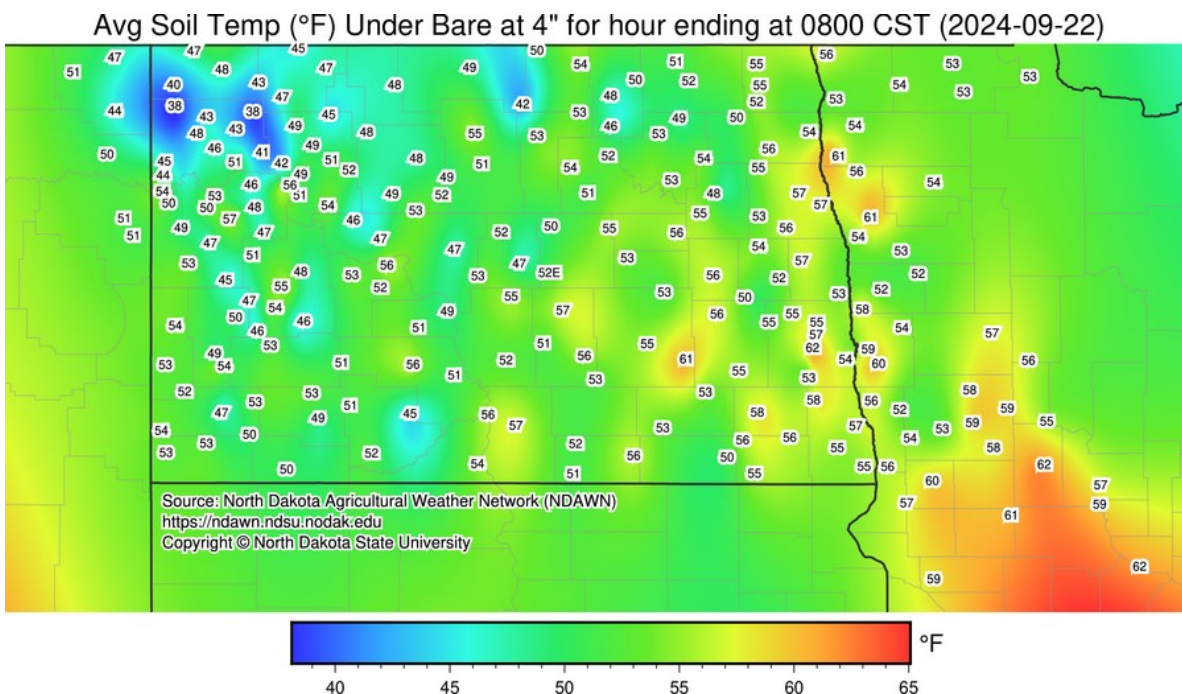
Fall-applied Nitrogen Fertilizer: A Couple Simple Rules

October will soon be here, and many people are preparing for fall nitrogen fertilizer applications. Before you hit the field, we want to share these important reminders about fall nitrogen application timing and placement to help you reduce potential soil nitrogen losses through fall and winter.

It is important to wait until soil temperatures reach 50 °F (10 °C) before applying fall nitrogen to reduce the risk of soil nitrogen loss. Once nitrogen fertilizer is applied, soil microbes begin converting ammonium-nitrogen (NH₄⁺) to nitrate-nitrogen (NO₃⁻), a process called nitrification. In the nitrate form, nitrogen is vulnerable to loss through nitrate leaching or denitrification. Soil temperatures cooler than 50 °F help slow microbial activity and keep nitrogen in the safer ammonium-nitrogen form longer. This applies to any ammoniacal nitrogen fertilizer source, which includes anhydrous ammonia, urea, UAN, and ammonium sulfate.

Quick rules for fall-applied nitrogen timing

1. Wait until after October 1 because cool soil temperatures are more consistent and reliable after this date. After October 1, measure soil temperature in the early morning (6 a.m. to 8 a.m.) at the 4-inch soil depth.
2. When the 4-inch soil temperature has reached 50 °F (10 °C), it is relatively safe to start applying anhydrous ammonia.
3. Wait one week after the anhydrous ammonia-safe date to apply banded urea.
4. Wait two weeks after the anhydrous ammonia-safe date to apply broadcast urea.



Soil temperature map from the North Dakota Agricultural Weather Network (NDAWN) from 22 September 2024.

It is a good idea to keep a soil thermometer with you to measure the current soil temperature in the field. In addition to NDAWN, a number of regional climate mesonets have online tools to search for local and regional soil temperatures.

The 50 °F soil temperature rule of thumb is particularly important for soils prone to nitrogen loss: well-drained, coarse-textured soils are prone to nitrate leaching and poorly-drained, fine-textured soils are prone to denitrification. If such soils receive excess precipitation or become saturated (waterlogged) through fall or spring, soil nitrate can be lost through leaching or denitrification. In general, it might be better to apply nitrogen fertilizer on such soils in spring. But, if you must apply nitrogen fertilizer in the fall, make sure you wait until soil temperatures are cold enough to keep it in the ammonium-nitrogen form for a longer period of time to reduce potential soil nitrogen losses.

For fall-applied nitrogen, subsurface banding or incorporation is also important to reduce ammonia volatilization, another potential nitrogen loss mechanism. Fall precipitation (rain or snow) is often too sporadic and unreliable to be considered an effective incorporation “strategy” for broadcast applications. Fall-applied urea should be banded below the soil surface (3 inches or deeper) or incorporated with tillage (at least 3-4 inches) to ensure complete coverage.

Shallow fertilizer bands or shallow incorporation with vertical tillage does not provide adequate soil coverage to prevent ammonia volatilization. If soils are very dry, successful incorporation may not be possible because tillage can produce large, uneven clods that leave nitrogen fertilizer exposed to the atmosphere and vulnerable to ammonia volatilization. Although dry soil poses a lower risk of ammonia volatilization than moist soil, soil moisture is not the only factor that contributes to ammonia volatilization risk (Table 1).

Table 1. Relative risk factors for ammonia volatilization

Factor	High risk	Low risk
Soil pH	>7	<6
Soil moisture	Moist	Dry
Rainfall, irrigation	Little or none, heavy dew	>0.3 inch after N applied
CEC (cmol/kg)	<10	>25
Soil temperature	>70°F	<50°F
Soil surface	>50% residue cover (turf, pasture, no-till)	Bare
Application method	Surface broadcast	Incorporated, subsurface band

Havlin, J.L., S.L. Tisdale, W.L. Nelson, and J.D. Beaton. 2014. Soil Fertility and Fertilizers: An Introduction to Nutrient Management. 8th ed. Pearson, Upper Saddle River, NJ. p. 161.

Fall-applied anhydrous ammonia should be banded 5 to 6 inches deep. Ensure that anhydrous ammonia trenches are sealing properly to prevent gaseous ammonia losses from the trench. In addition, the nitrification inhibitor nitrapyrin (brand name N-Serve) can be added to anhydrous ammonia to slow nitrification, offering additional insurance to keep nitrogen in the safer ammonium-nitrogen form for longer. Nitrapyrin is also available in formulations for dry and liquid nitrogen products. Please note that nitrapyrin degrades faster and loses its effectiveness at warmer soil temperatures, so it is no substitute for cooler soil temperatures (<50 °F).

Fall-applied nitrogen is a convenient way to allocate time and labor resources, leaving one less thing to do in the spring. But, you must be smart and consider fertilizer source, timing, and placement options to make sure that the nitrogen applied in the fall will still be there next spring. With fertilizer prices still remaining high, now is not the time to risk soil and fertilizer nitrogen loss.

We hope you have a safe harvest and soil sampling season!

Kari Beckman –District Manager
Linda Tooke -District Technician
514 Thompson St. #2
Bottineau, ND 58318-1238
Phone: (701) 228-3611 ext. 3
Email: kari.beckman@nd.nacdnet.net
linda.tooke@nd.nacdnet.net

Or Current Resident

NRCS & BOTTINEAU FIELD OFFICE STAFF

Amy Sand –District Conservationist
Whitney Huesers-CDU Supervisor
Hailey Neubauer –Biologist
Colette Guariglia -Wetland Specialist
Steph Baker-Soil Conservationist

BOARD MEMBERS

Tyler Neubauer -Chairman
Bruce Knudson –Vice Chairman
Mike Erdman
Marty Kitzman
Brent Moum

Checkout our new website!
www.tmscd.net

Banana Bars with Cream Cheese Frosting

Ingredients:

1/2 cup butter, softened
2 cups sugar
3 eggs
1-1/2 cups mashed ripe bananas (about 3 medium)
1 teaspoon vanilla extract
2 cups all-purpose flour
1 teaspoon baking soda
Dash salt



Frosting:

1 package (8 ounces) cream cheese, softened
1/2 cup butter, softened
4 cups confectioners' sugar
2 teaspoons vanilla extract

Directions:

1. In a large bowl, cream butter and sugar until light and fluffy. Beat in the eggs, bananas and vanilla. Combine the flour, baking soda and salt; stir into creamed mixture just until blended.
 2. Transfer to a greased 15-in. x 10-in. x 1-in. baking pan. Bake at 350° for 20-25 minutes or until a toothpick inserted near the center comes out clean. Cool in pan on a wire rack.
 3. For frosting, in a small bowl, beat cream cheese and butter until fluffy. Add confectioners' sugar and vanilla; beat until smooth. Frost bars. Yield: 3 dozen.
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