

Post Wood Stove Changeout Evaluation: Results and Lessons Learned

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March 8, 2018

Introduction



WOODSTOVE
CHANGEOUT



Project Background

Project Background

Program Overview and Requirements

- Consent Decree, U.S. v Consumers Energy Company, Civil Action 14-13580
- Non-EPA certified appliances
- Surrender old appliances
- Professional status
- City or county codes/ordinances.
- Proper operation of new appliance and wood moisture meter

Qualifying Appliances

- EPA-certified wood stove (freestanding or insert)
- EPA-certified wood-pellet stoves
- EPA-certified hydronic heater
- New gas stove or gas stove insert (natural gas or propane)
- Energy Efficient gas furnace or boiler
- Woodstove catalyst retrofit / replacement
- EPA Qualified retrofit device (for open fireplaces)

[Burn Wise - Types of Appliances:](https://www.epa.gov/burnwise/burn-wise-types-appliances)

<https://www.epa.gov/burnwise/burn-wise-types-appliances>



Project Background

Program Start Date: August 8, 2016

Phase I: Income Qualified Pilot Program

Phase II: Burn Wise Awareness Campaign

Phase III: General Residential Program

Proper Operation Initiative

Results: Basic Information

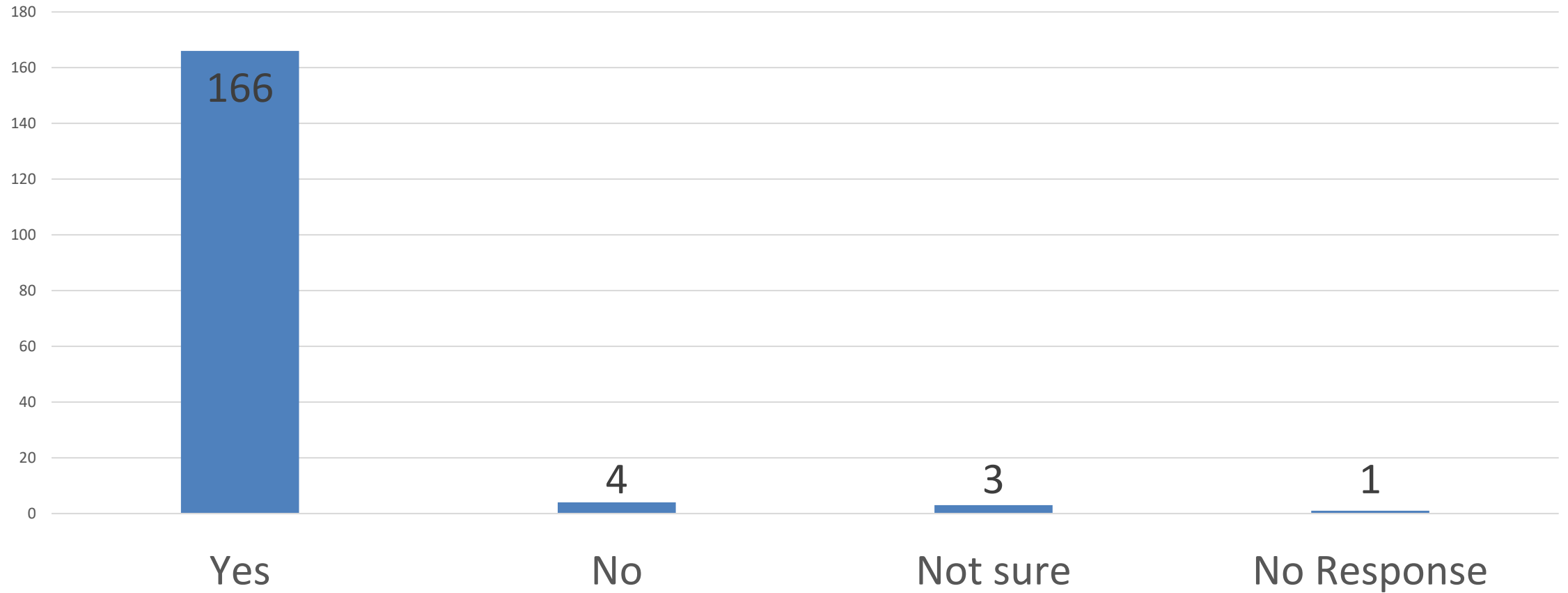
# of surveys distributed	294
# of surveys completed	174
○ Online	22
○ Paper	152
 Response Rate	 59.2%

Question Categories	
Section I: Required Gas / Wood Appliances	<ul style="list-style-type: none">• Learning to use new appliance• Purchase trends• Appliance usage
Wood Appliances Only	<ul style="list-style-type: none">• Burn Wise documents• Wood Moisture Meter Usage• Firewood Storage• New wood appliance effects
Section II: Optional Gas / Wood Appliances	<ul style="list-style-type: none">• Voucher effects• New appliance operation• Program Impact

Results

Learning to Use the New Appliance

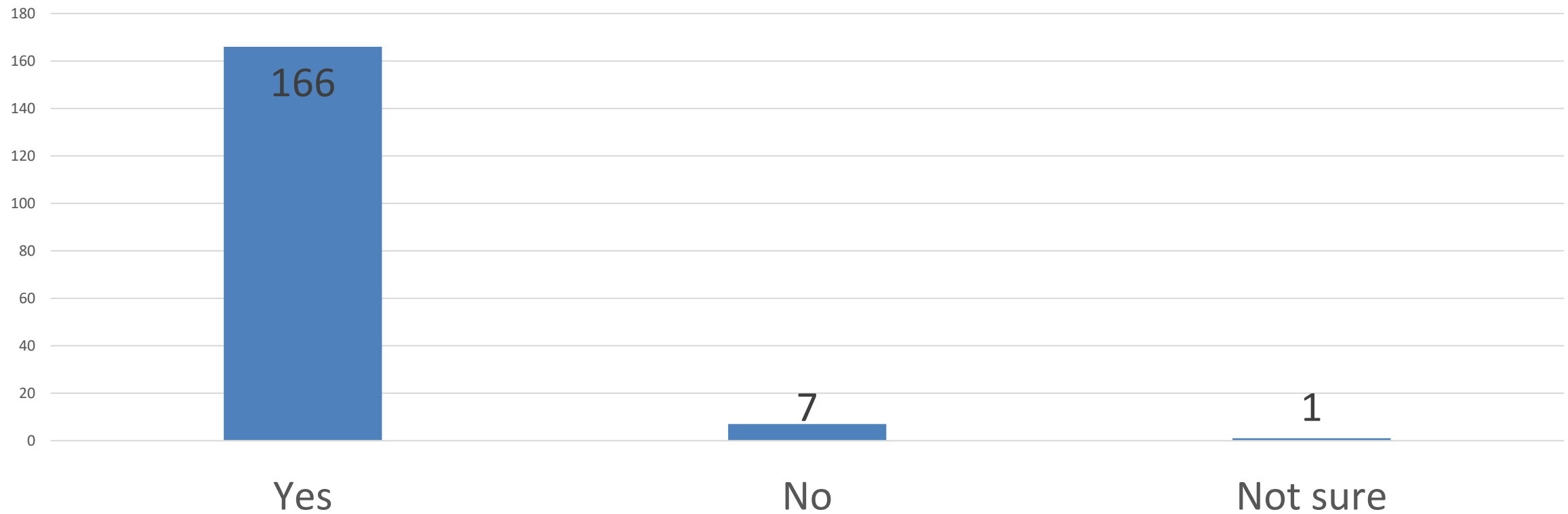
Did you receive an owner's manual for your new appliance?



Results

Learning to Use the New Appliance

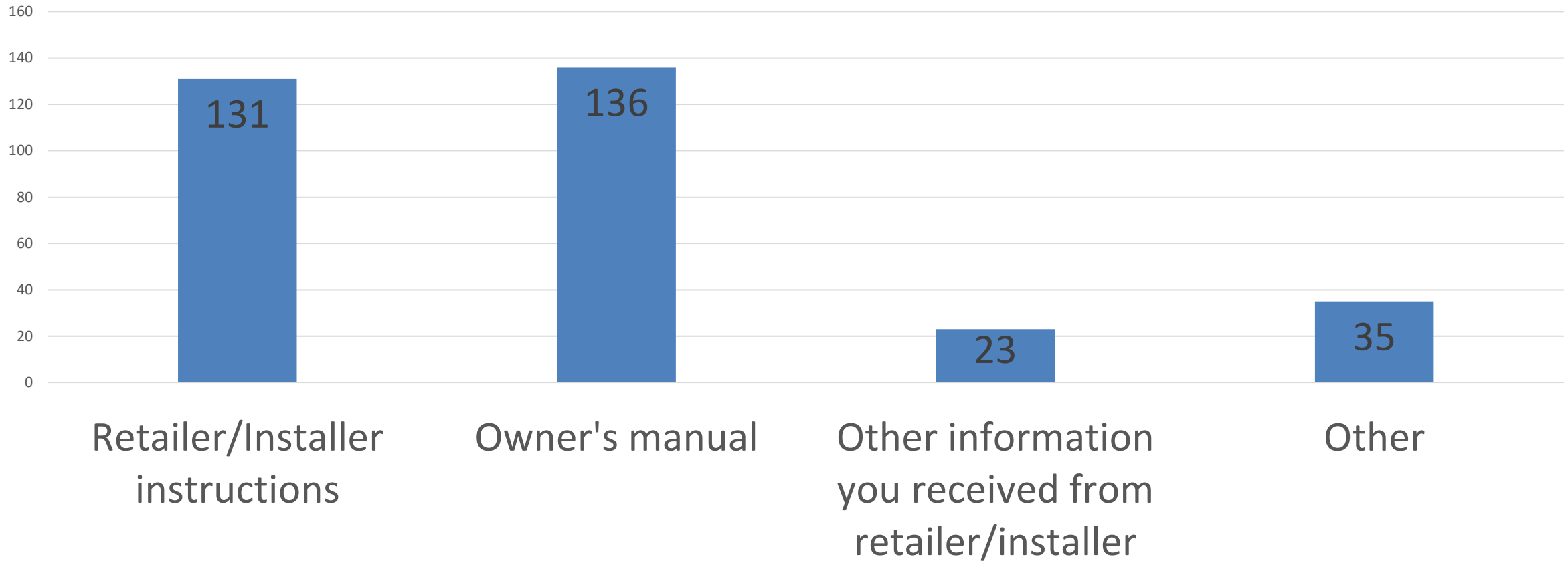
Did the retailer and/or installer show/tell you how to use your new appliance?



Results

Learning to Use the New Appliance

What resources did you find useful in operating your new stove?



Results

Learning to Use the New Appliance

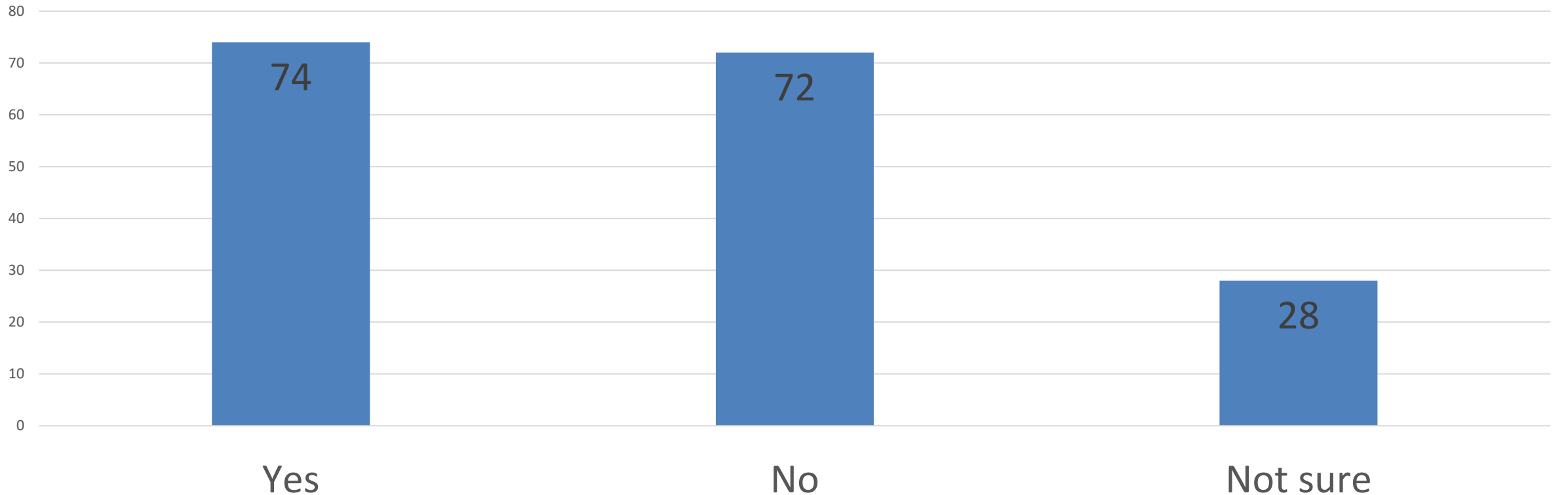
If you checked "other", please describe the other resource(s) you found useful in operating your new stove:

- ✓ **Previous woodstove experience**
- ✓ **DVD supplied with new appliance (Green Smart)**
- ✓ **Installer demonstration**
- ✓ **Online blogs on proper burning, cutting, and splitting**
- ✓ **Online videos (youtube.com, manufacturer's site)**
- ✓ **Trial & Error**

Results

Purchase Trends

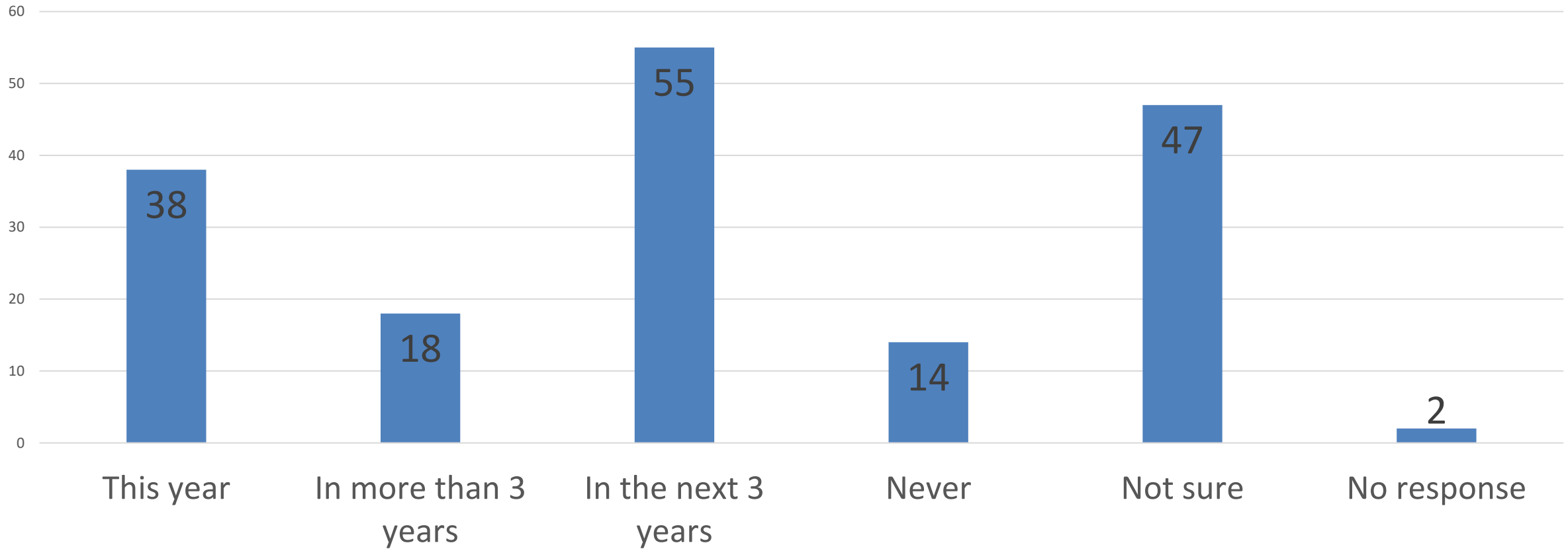
Were you already planning to purchase a new appliance when you first heard about the program?



Results

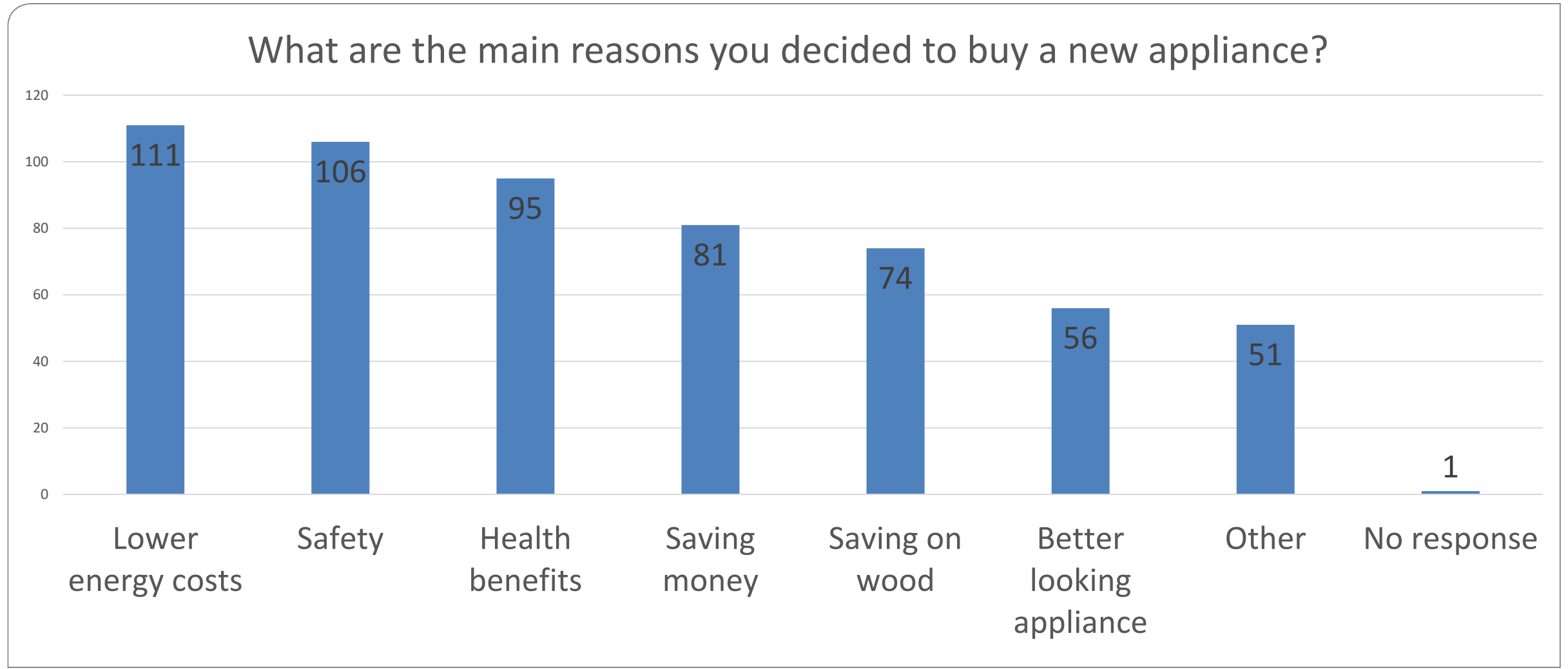
Purchase Trends

When would you have purchased a new appliance if this program had NOT been offered?



Results

Purchase Trends



Results

Purchase Trends

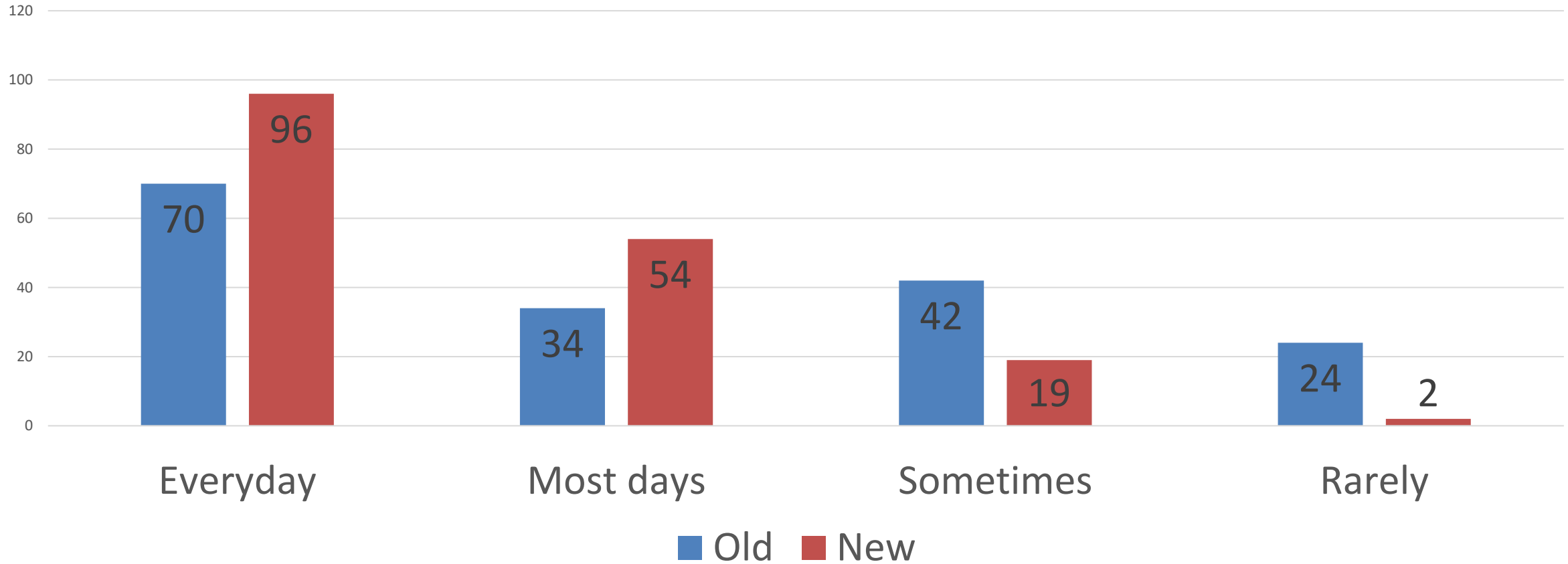
If you checked "other", please explain the other reason(s) you decided to buy a new appliance:

- ✓ Ease of use
- ✓ Voucher
- ✓ Broken and/or aged appliance
- ✓ Convenience of gas or wood pellets:
reduced labor
- ✓ Tired of mess from wood and smoke
in house
- ✓ Environmental awareness
- ✓ Glass doors
- ✓ Clearance
- ✓ Chimney fire
- ✓ Age
- ✓ Natural gas access

Results

Appliance Usage

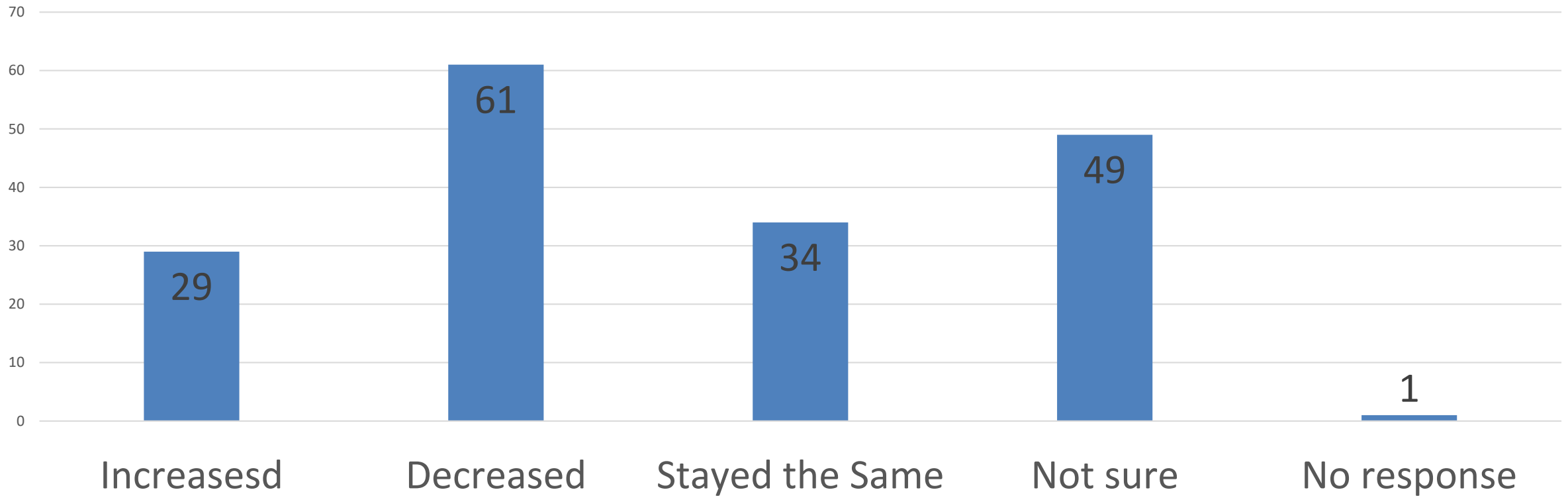
Use of old stove vs new stove during heating season



Results

Appliance Usage

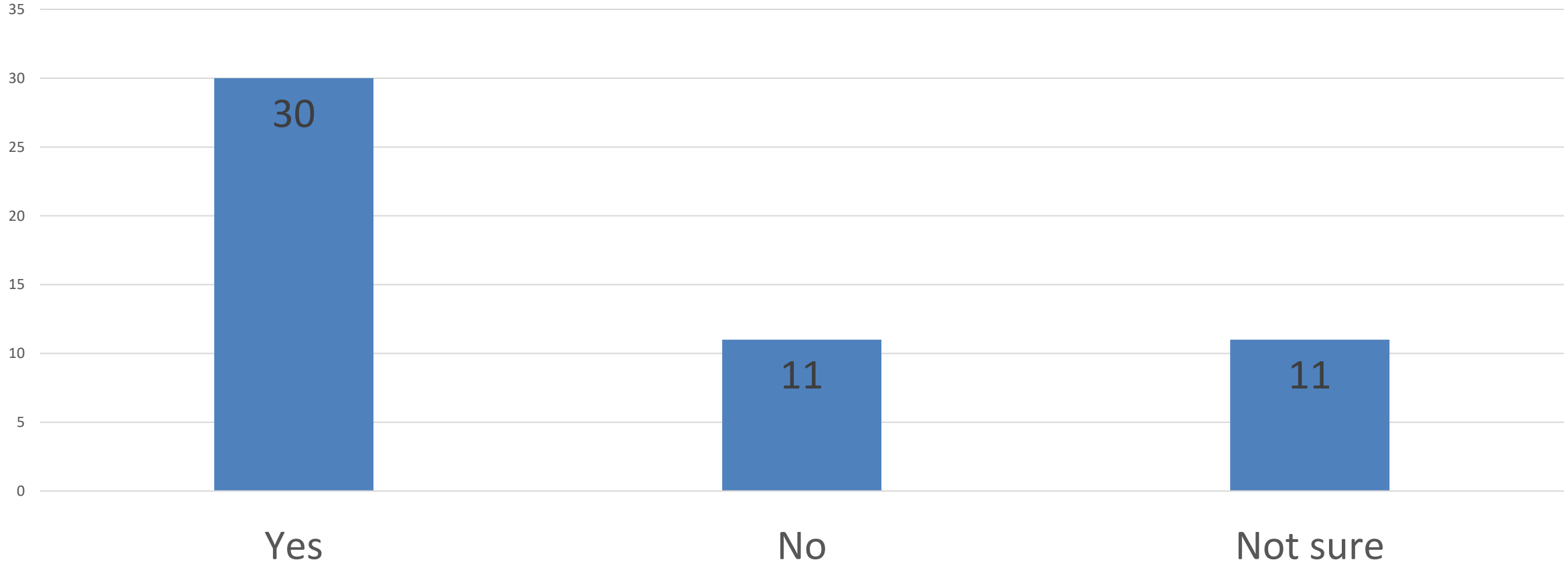
How have your home heating bills changed with the use of your new appliance compared to this time last year (i.e. winter of 2017)?



Results

Burn Wise Documents

Did you receive best burn practices flyers and/or brochures?



Results

Burn Wise Documents

WET WOOD IS A WASTE
BURN DRY FIREWOOD TO SAVE MONEY AND HEALTH

Four Easy Steps to Dry Firewood

STEP 1 SPLIT STEP 2 STACK
STEP 3 COVER STEP 4 STORE

Burn Wise Program of U.S. EPA

Look Take a **Second Look** at Your Wood Stove

Do you...

- Small smoke in the house?
- Notice smoke coming from the chimney?
- See more dust around the house when you use the wood stove?
- Experience watery eyes and stuffy noses with use of the wood stove?
- Have to constantly feed the stove with wood?

If you answered "Yes" to any of these items, consider replacing your old wood stove.

Learn Learn Before You Burn

- 1 Burn the right wood**
Save money and time. Burn only dry, seasoned wood and maintain a hot fire.
- 2 The right way**
Keep your home safer. Have a certified technician install and annually service your appliance.
- 3 In the right appliance**
Make your home healthier. Upgrade to an efficient, EPA-approved wood-burning appliance.

Burn Wise Program of U.S. EPA
www.epa.gov/burnwise

MPBA EPA

DOES YOUR WOOD STOVE HAVE A DIRTY LITTLE SECRET?

Burn Wise Program of U.S. EPA

EPA 456/F-11-002
Printed on 100% recycled/ recyclable paper with a minimum 10% post-consumer waste using vegetable based ink.

Burn Wise: Test Your Wood with a Moisture Meter

Why should I use a wood moisture meter?

Burning wet wood is a waste of money. Wood costs less when you buy it, but it costs more when you burn it. Wet wood is inefficient and produces more smoke and particulate matter than dry wood. Wet wood also produces more creosote, a flammable substance that can build up in your chimney and cause a chimney fire.

The most common way to test for moisture in wood is to use a moisture meter. A moisture meter is a small device that you insert into the wood. It measures the amount of water in the wood and gives you a reading. A reading of 20% or less is good. A reading of 30% or more is bad. A reading of 40% or more is very bad.

How do I test my firewood with a wood moisture meter?

Split the wood into small pieces (about 4 inches long, 2 inches wide, and 1 inch thick). Use the moisture meter on the end grain of the wood. Do not use the meter on the side grain of the wood. Do not use the meter on green wood. Do not use the meter on wood that has been treated with preservatives. Do not use the meter on wood that has been painted or stained.

How to Season Your Firewood?

Moisture meters are available at hardware stores, home improvement stores, and online. They range from about \$10 to \$50. They are easy to use and give you a quick and accurate reading.

Step 1 Split the wood
Step 2 Stack the wood
Step 3 Cover the wood
Step 4 Store the wood

Burn Wise Program of U.S. EPA

Burn Wise Program of U.S. EPA
BURN THE RIGHT WOOD, THE RIGHT WAY, IN THE RIGHT WOOD-BURNING APPLIANCE

Did you know that by changing the way you burn wood you can save money, reduce air pollution and protect your health?

Here are a few simple tips to make your fire burn hotter, keep your wallet fatter and keep your local air cleaner and healthier.

- Season all firewood.** All firewood should be split, securely covered or stored, and aged for at least six months. Seasoned wood burns hotter, cuts fuel consumption and reduces the amount of smoke your appliance produces.
- Choose the right firewood.** Hardwoods are the best. Never burn trash or treated wood which can emit toxic air pollutants.
- Start it right.** Use only clean newspaper or dry kindling to start a fire. Never use gasoline, kerosene, charcoal starter, or a propane torch.
- Don't let the fire smolder.** Many people think they should let a fire smolder overnight. But reducing the air supply does little for heating and increases air pollution.
- Clean ashes from your wood-burning appliance.** Excess ashes can clog the air intake vents reducing efficiency. Be sure to dispose of ashes in a metal container away from the house or any flammable material to reduce the risk of fire.
- Keep your chimney clean.** A clean chimney provides good draft for your wood-burning appliance and reduces the risk of a chimney fire. Have a certified professional inspect your chimney once a year.
- Be a good neighbor.** Follow best practices for burning wood. Always remember to comply with state and local codes and check your local air quality forecast.
- Follow instructions.** Operate your wood-burning appliance according to the manufacturer's instructions and follow all maintenance procedures.
- Upgrade to cleaner equipment.** EPA-certified wood stoves and fireplace inserts burn cleaner and burn wood more efficiently emitting less particle pollution than older models.
- Size matters.** Choose the right-sized appliance for your needs. If your wood-burning appliance is too big for your room or house, the fuel will smolder and create more air pollution.

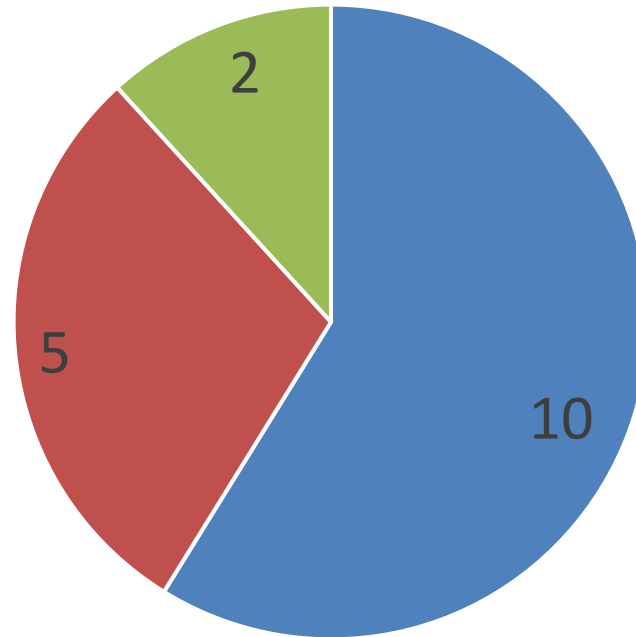
EPA For more information on how to burn wise, go to www.epa.gov/burnwise

EPA-456/F-09-004

Results

Burn Wise Documents

How helpful was the *Wet Wood is a Waste* brochure?

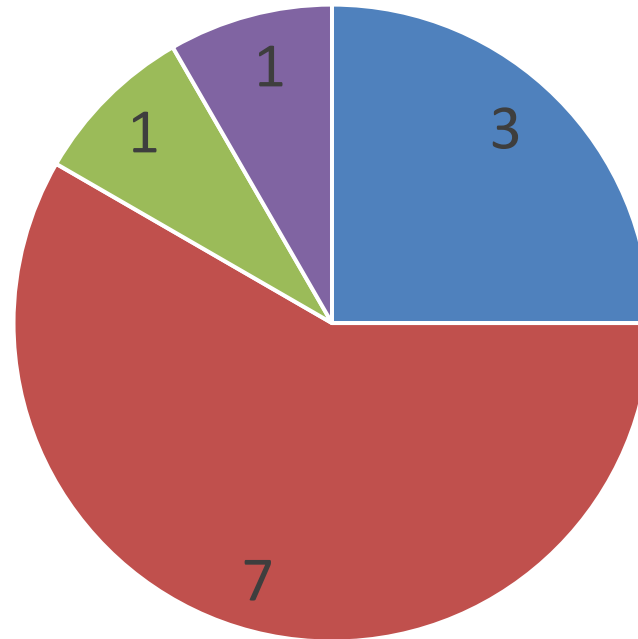


■ Very helpful ■ Somewhat helpful ■ Not so helpful

Results

Burn Wise Documents

How helpful was the *Your Old Wood Stove's Dirty Little Secret* brochure?

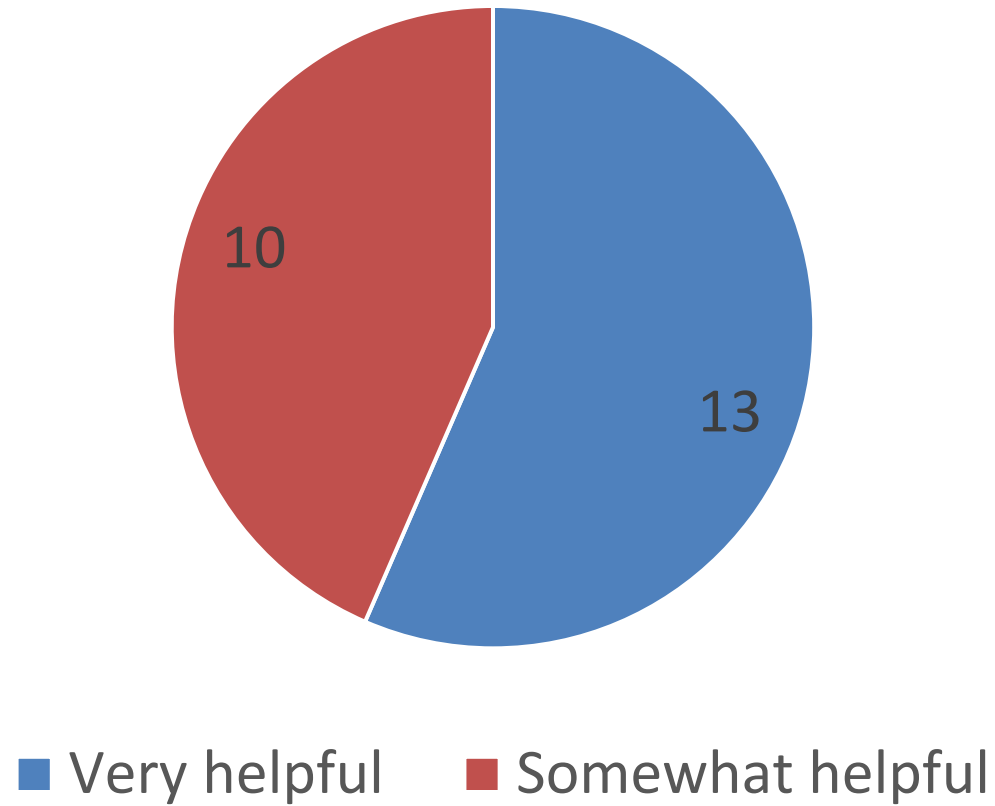


■ Very helpful ■ Somewhat helpful ■ Not so helpful ■ Not at all helpful

Results

Burn Wise Documents

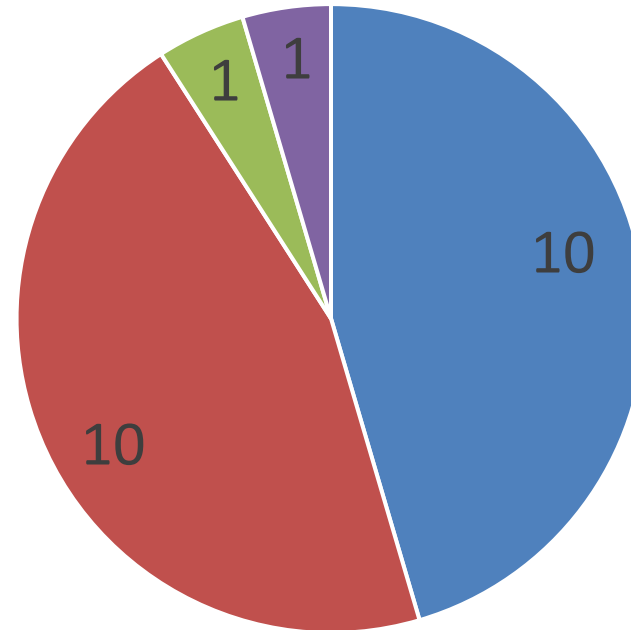
How helpful was the *How and Why to Use a Moisture Meter* flyer?



Results

Burn Wise Documents

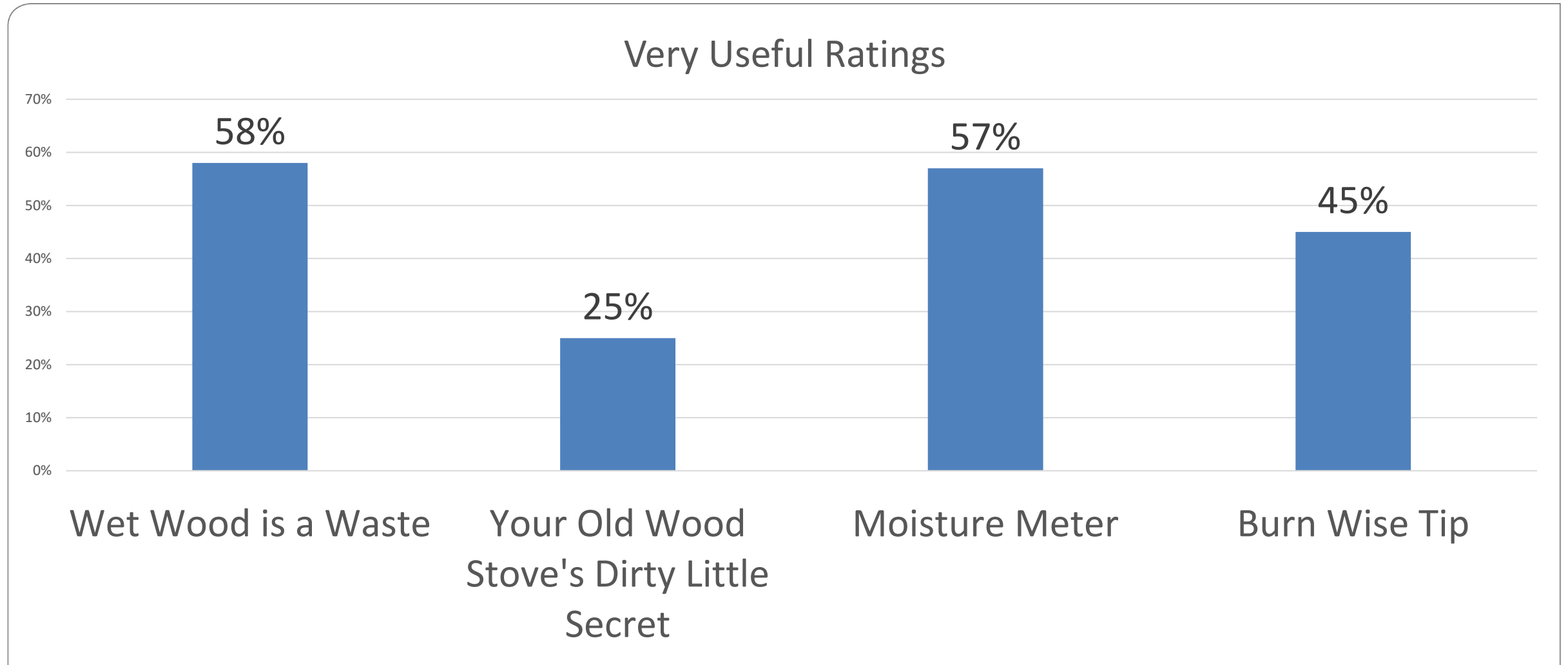
How helpful was the *Burn Wise Tips* sheet?



■ Very helpful ■ Somewhat helpful ■ Not so helpful ■ Not at all helpful

Results

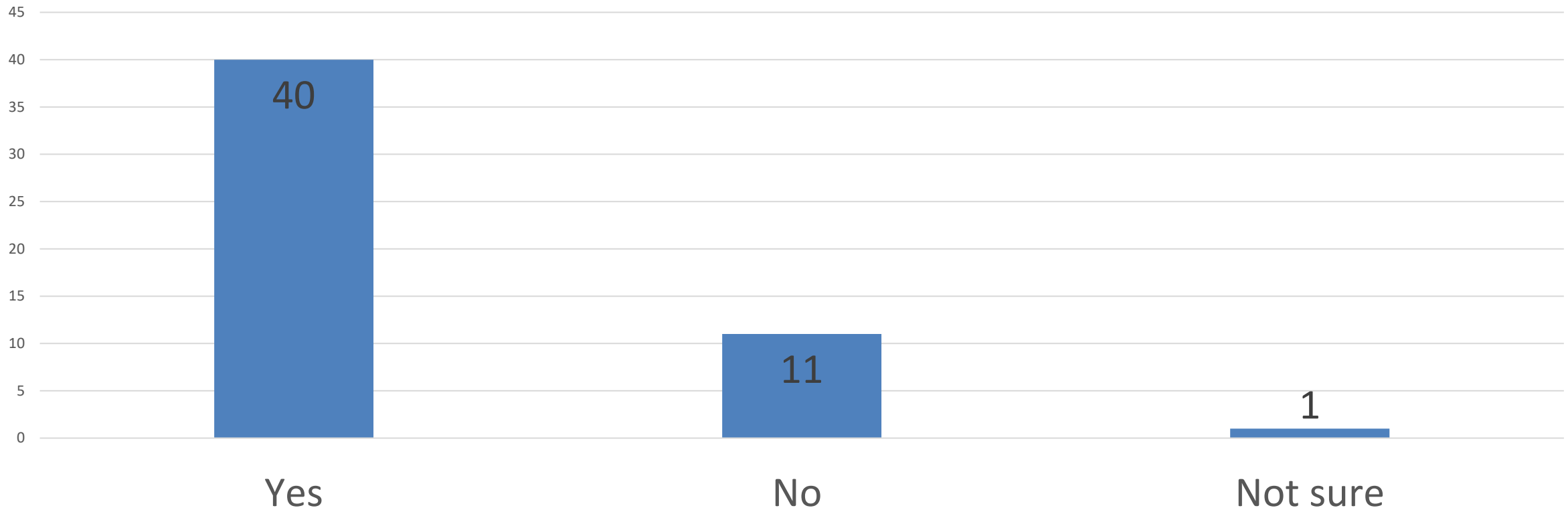
Burn Wise Documents



Results

Wood Moisture Meter

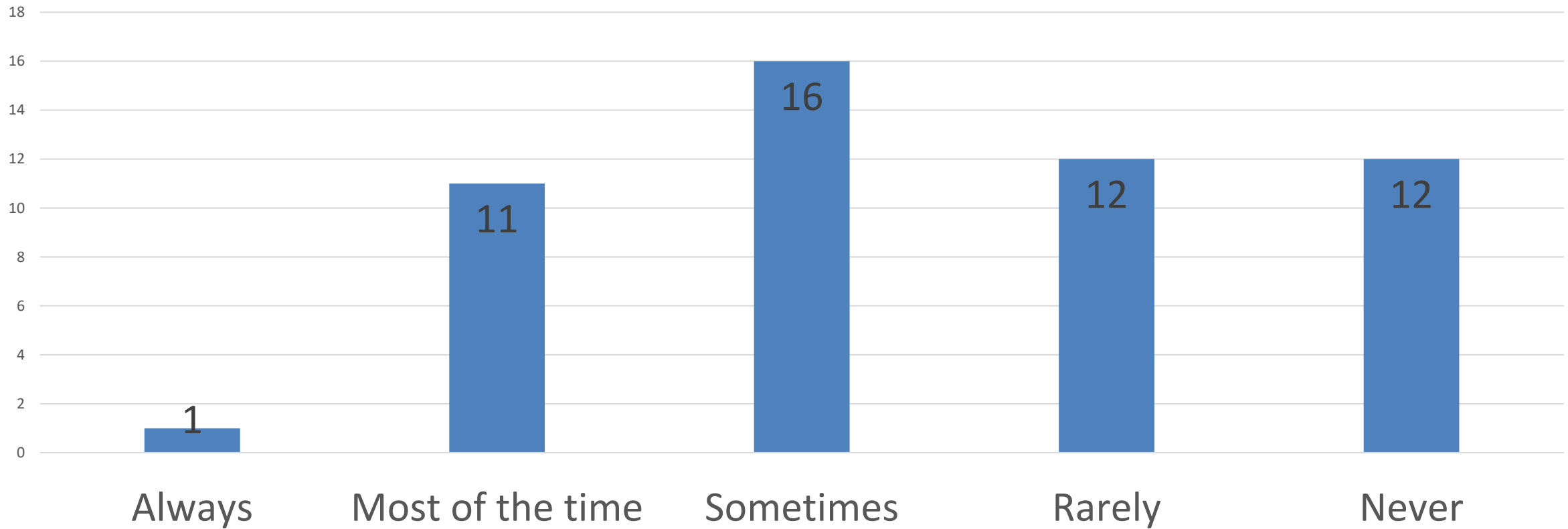
Did you receive a wood moisture meter with your new wood burning appliance?



Results

Wood Moisture Meter

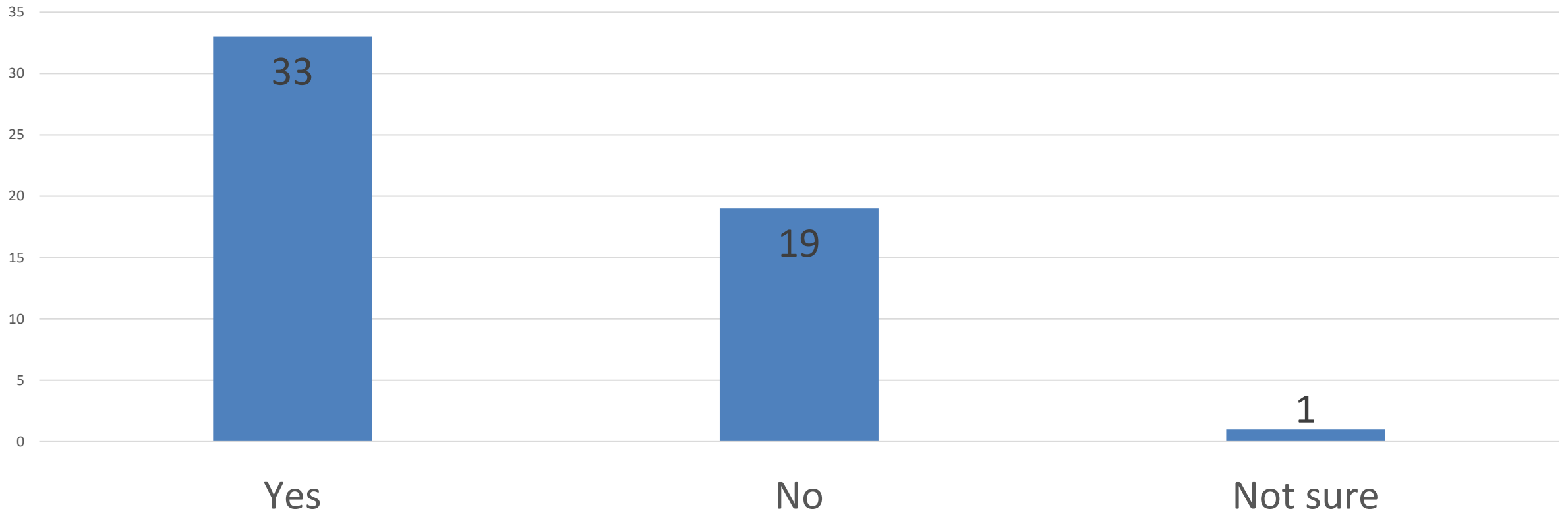
When using your new wood burning appliance, how often do you use a wood moisture meter to test your firewood?



Results

Wood Moisture Meter

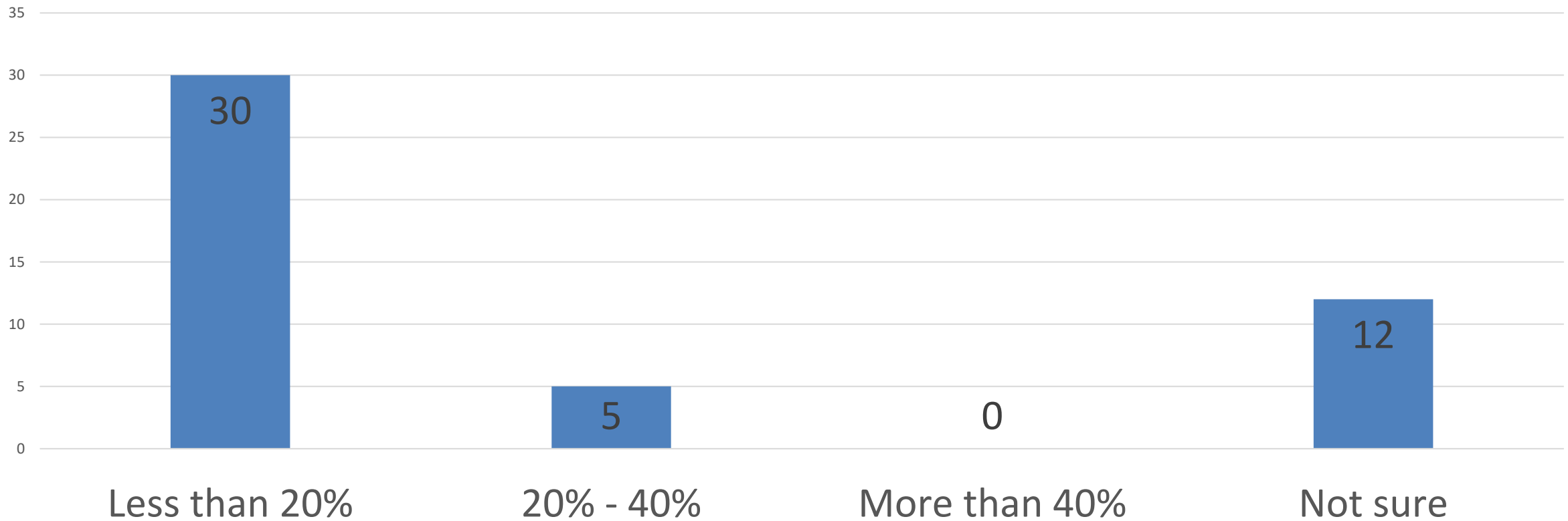
Did the retailer or installer show/tell you how to use the moisture meter or provide you with an informational flyer?



Results

Wood Moisture Meter

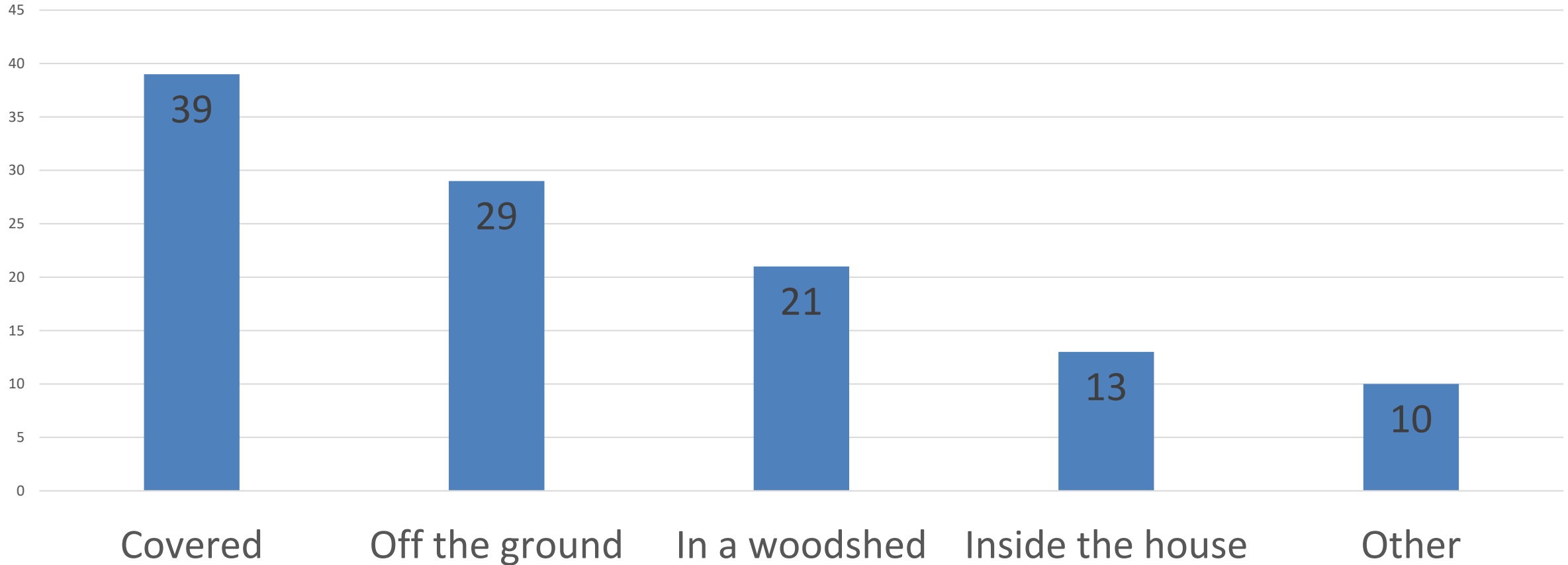
If you use a wood moisture meter, what is the moisture content of the firewood that you usually burn?



Results

Firewood Storage

How do you store your firewood? (Check ALL that apply)



Results

Firewood Storage

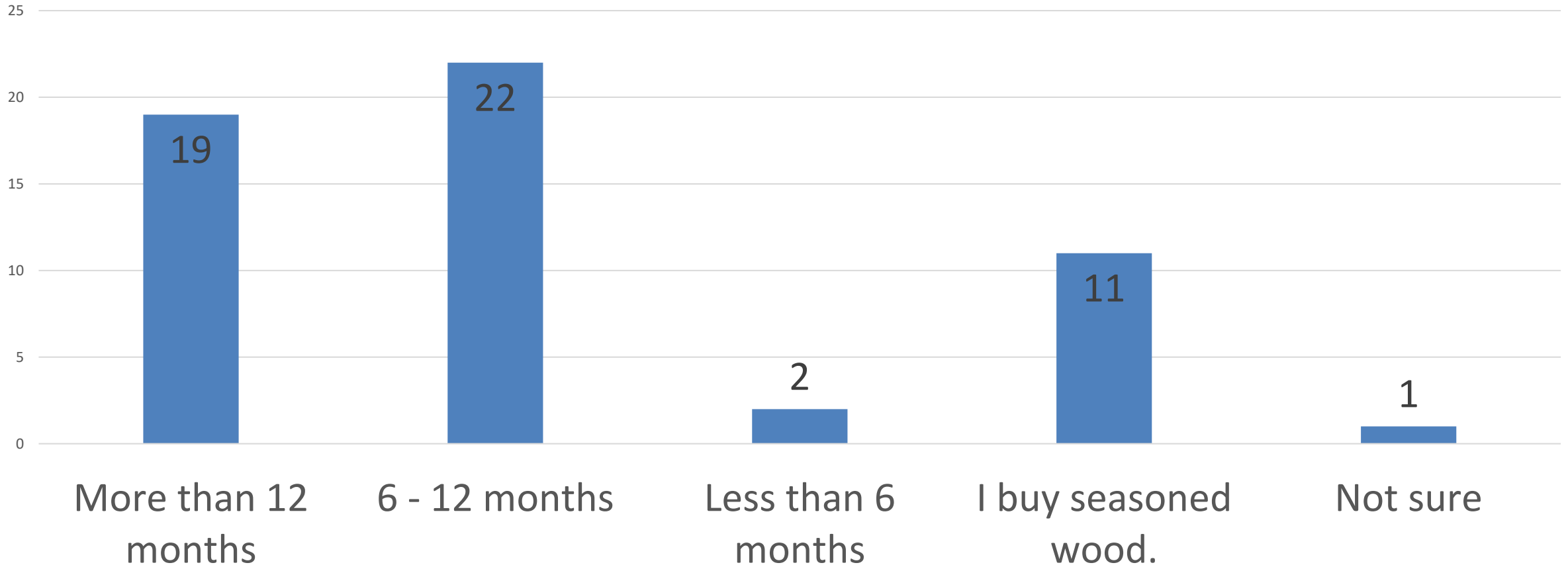
If you checked "other", please explain below the other way(s) you store your firewood:

- ✓ **Week supply stored inside. The pile to replenish is stacked outside, uncovered.**
- ✓ **In the garage**
- ✓ **Purchased, stacked to season, and then stored in garage**
- ✓ **Next to shed**
- ✓ **On covered and/or screened porch**
- ✓ **Outside: once it is split, it's stored in unheated garage**
- ✓ **Split, stacked on 16 foot trailer, and covered with tarp**

Results

Firewood Storage

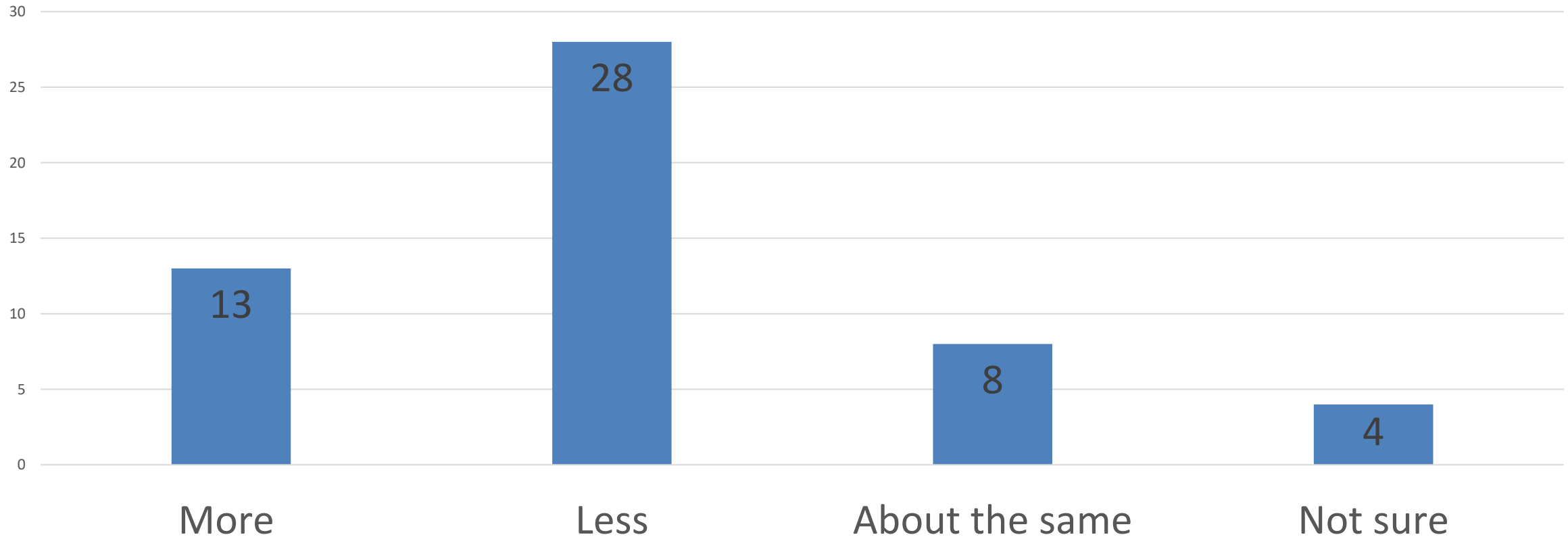
How many months do you store firewood before burning it?



Results

New wood appliance effects

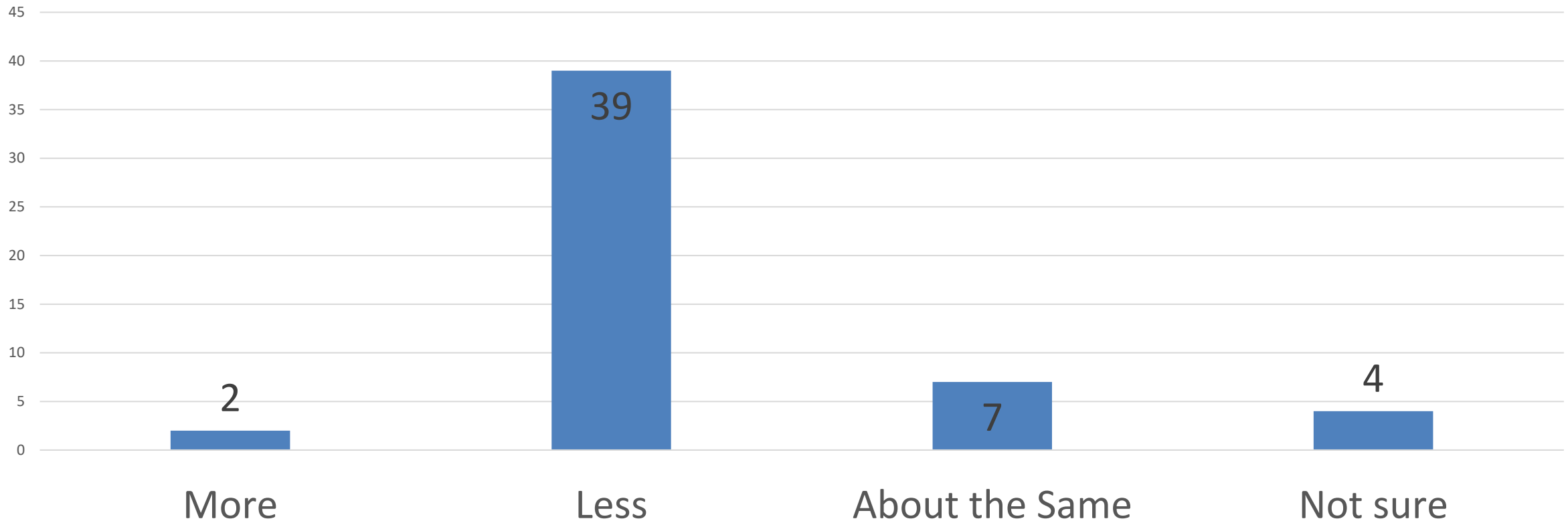
How much wood have you been burning this winter compared to this time last year (i.e. winter of 2017)?



Results

New wood appliance effects

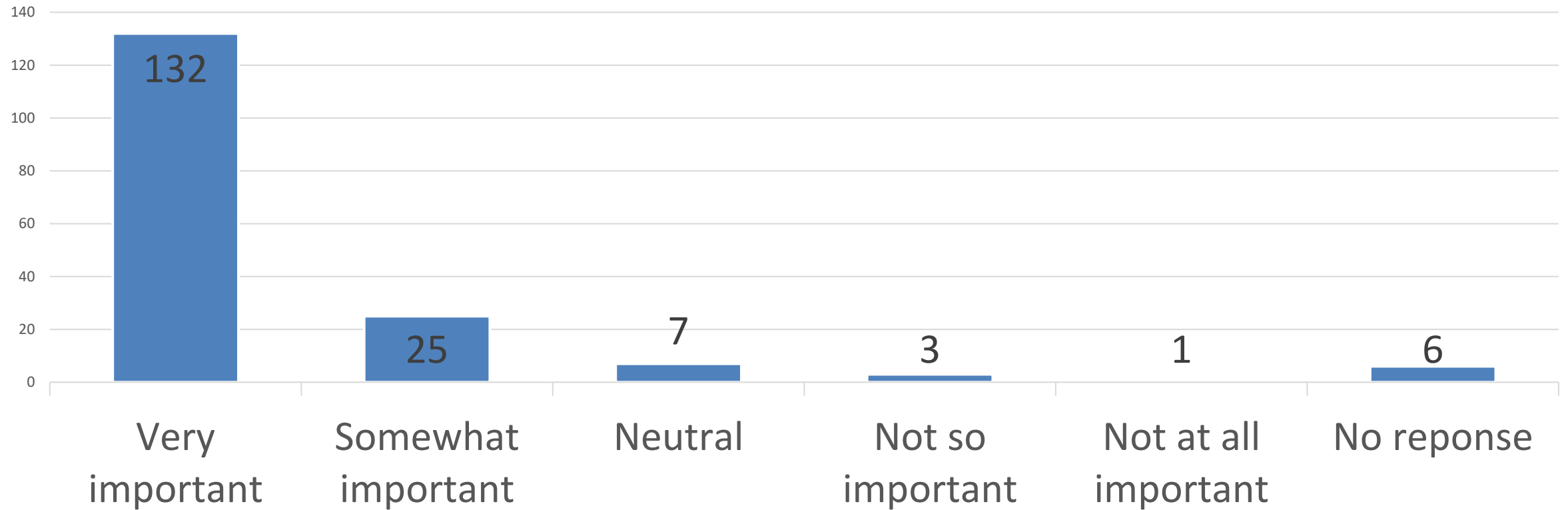
How much smoke is in your home now that you have a new appliance compared to this time last year (i.e. winter of 2017)?



Results

Voucher effects

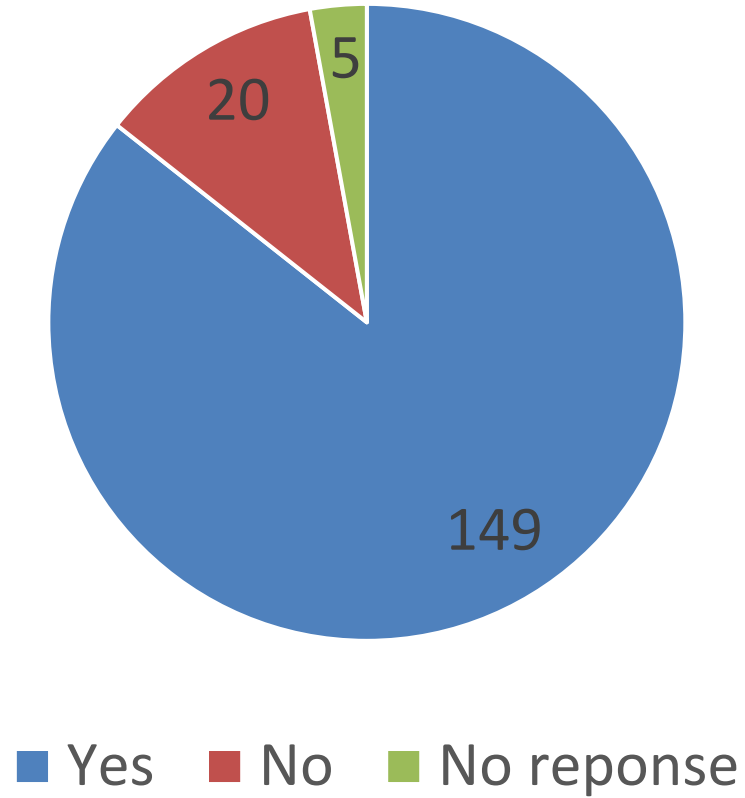
How important was receiving the voucher in your decision to replace your old appliance?



Results

New appliance operation

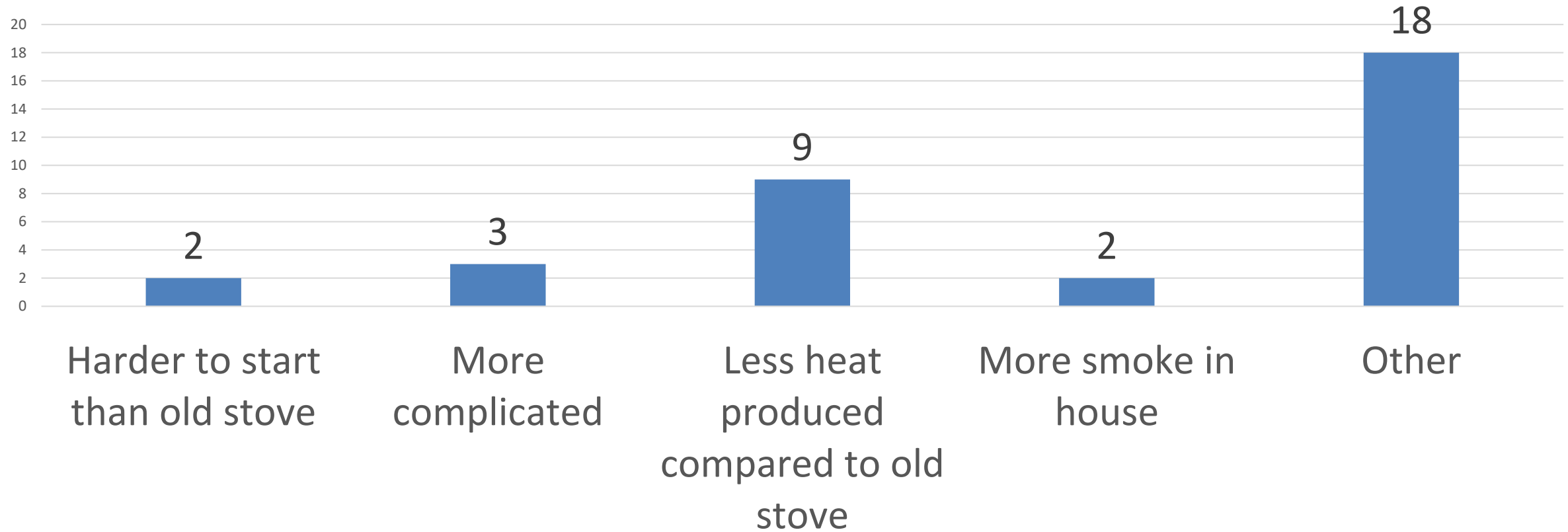
Is your new appliance operating to your expectations?



Results

New appliance operation

If you answered "no", in what ways is your new appliance NOT operating to your expectations?



Results

New appliance operation

If you answered "other", please type in a description of the other way(s) your new appliance is not operating to your expectations.

- ✓ **It does a nice job and heating the house evenly, but it does burn more fuel than I expected from a high efficient, modulating boiler.**
- ✓ **Increase in electricity bill**
- ✓ **Requires more maintenance**
- ✓ **Has to be vacuumed every 3 days**
- ✓ **Requires a special firewood length**
- ✓ **Different kind of heat**
- ✓ **Big learning curve to learn how to use**
- ✓ **Lack of adequate airflow**
- ✓ **Cleaning is by far messier with the finer ash**

Results

Program Impact

From what you understand, what was the woodstove changeout program all about?

- ✓ **Better air: inside and out / reducing air pollution**
- ✓ Lower heating bills
- ✓ **Lower energy use**
- ✓ **Higher efficiency**
- ✓ Safer appliances
- ✓ **Health benefits and prevention, improve lung health**
- ✓ Protect natural environment
- ✓ For me to save money
- ✓ Saving trees

Results

Program Impact

Please provide a brief testimonial (1 - 2 sentences) below describing your experience with the woodstove changeout program.

- As a participant in the MI Woodstove Changeout Program, I am thankful for the American Lung Association opportunity to help me changeout my wood burning fireplace for a gas unit. We are now breathing cleaner air (several household members have lung problems including our 4 year old) and heating more efficiently. No ashes or ash dust to bother with or breathe. This was a wise health decision for us to make. Thank you, ALA , for your grant. Peace & Blessings. -Sharron A., Kalamazoo, MI

Results

Program Impact

- Cannot express how happy we are with our new wood stove. The ALA promotion not only saved us costs but also helped us decide that upgrading our wood stove was beneficial not just in cost but health for us and those around us. The new wood stove is also for easier to operate. It provides a better warmth throughout the house. Very happy that we participated and got this done. -Steve B., Casco, MI
- Every time I walk in my living room I am proud of my decision to purchase my gas burning insert through the program. I tell all my friends about it, and I use my fireplace all the time. Thank you!!! –MI Woodstove Changeout Participant

Results

Program Impact

- Eliminating my old wood fireplace and wood box was the best thing I have done. My home is so much cleaner, and I get the same amount of heat for less money! - Bay Area Home Owner
- Having our woodstove changed out has helped my kids' allergies. They are having less allergy issues this year and our home is so much less dry. My children breath easier now.
- I am very happy with the woodstove changeout program. I burn wood in my woodstove year round, and the efficiency of the stove and reduced amount of smoke is a win in my book. -Mark H.

Lessons Learned

- ✓ **Burn Wise material**
- ✓ **Wood Moisture Meter**
- ✓ **More initial retailer outreach**
- ✓ **Evaluation piece was critical!**



Contact Information

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