

# ATVs and UTVs on the fire line:

How to pick the best rig for your needs  
and how to use it safely

*Presented by*

*Dave Feutz and Jerry Ziegler*

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take knowledge to the extreme



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ATV RECALLS

ATVS IN THE NEWS

ATV LINKS

PRESS ROOM

CPSC NEWS ON ATVS:

- [2010 ATV Annual Report](#)
- [ATV Safety Summit Videos](#)
- [ATV Safety Summit Presentations](#)

RECENT ATV-RELATED DEATHS:

A preliminary review of news reports shows at least 9 deaths from 12/4/2012 to 12/17/2012. Of these, 2 were youths under 16.

## Available Now: [ATV Safety Summit Videos](#) and [Presentations](#)

Welcome to ATVSafety.gov – the first stop on the path to a safer off-road riding experience. This site is dedicated to helping drive down the high number of deaths and injuries with all-terrain vehicles, by making sure parents, teenagers, children, trainers, state officials and others have the most up-to-date safety information about ATVs.

Experience counts when riding an ATV. All new riders are strongly encouraged to take a training course, which are offered nationwide and are often free. These classes will

teach you about the proper gear to wear, the techniques for riding on different terrain; and essential life-saving tips, such as not riding on paved roads, not riding at night, and not riding tandem on a 1-Up ATV.

It also very important for everyone to know that children under 16, should never ride an adult-size ATV.

We hope all visitors to this site will come away with a better sense of what can be done in their community and in their home to make ATV riding a safe, responsible activity.



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## Wisconsin

### ➔ State Laws:

- Children under 12 must wear a helmet at all times except if the ATV is operated for agricultural purposes or on family's land.
- Children between age 12 and 18 must wear a helmet, unless hunting or fishing, operating for agricultural purposes, or on their family's land.
- All ATVs are required to be registered. There are two types of registration: (1) public land use, which is renewed every two years or (2) private land use, which lasts for the lifetime of the vehicle.
- No one under 12 may operate an ATV unless operating on their family's land, operating for agricultural purposes and under direct supervision of a person over age 18, or unless operating a 4-wheel ATV of 90cc or less on a designated ATV trail and accompanied by a parent.
- No one under 12 may operate an ATV on a roadway.
- Children at least age 12 and born on or after January 1, 1988, must have taken a safety training course, unless operating on family's land.
- ATV use on roads is prohibited, except for agricultural purposes or to cross these roads.
- ATVs shall not be operated during hours of darkness without a lighted taillight and headlight.

➔ **State Agency that Regulates ATVs:** Department of Natural Resources. View their Web Site: [www.dnr.state.wi.us](http://www.dnr.state.wi.us)

➔ **Training:** Click [here](#) to learn how to enroll in an ATV safety training course near you!

➔ **Legislation:** To view Wisconsin's state ATV laws, click [here](#)



### State ATV Deaths

**Total Reported Deaths (1982-2010): 281**

\*Data collection for 2007-2010  
is ongoing

**Reported Deaths (1982-2006): 218**

**Reported Deaths (2007-2010): 63**

\*Data collection for 2007-2010  
is ongoing















This ATV was working on a prescribed fire in South Dakota. The ATV rolled over and in the process an extra 5-gallon can of torch mix on the front cargo rack fell out and leaked fuel, which quickly ignited and spread to the surrounding vegetation and the ATV. The operator was not injured in the rollover but received a minor burn while trying to put out the fire.



An inexperienced operator is 13 times more likely to have an accident than an experienced operator during the first month of operation.

## ATV



### Advantages

- Nimble, gets into tight places
- Great for scouting the fire line

### Disadvantages

- Small water capacity
- High center of gravity because you are sitting on top, easier to be thrown off
- Poor handling on pavement
- One-person capacity

vs.

## UTV



### Advantages

- Two-person capacity
- Low center of gravity because you are inside rather than on top of the vehicle
- Seat belts and roll bars
- Larger cargo capacity

### Disadvantages

- Tight turning. Can't get into tight spots or sharp corners. UTV is up to 65 inches vs. 50 inches or less for an ATV

## ATV



### Cost:

- Basic unit: About \$7,000 for a Honda Foreman or Rancher model.
- Added equipment:
  - \$2,000 minimum for a custom-built rig that includes pump, tank, hose, nozzles.
  - \$3,000 or more for an off-the-shelf rig.
- Grand total: \$9,000 or more, before taxes or other fees.

vs.

## UTV



### Cost:

- Basic unit: \$13,000 to \$16,000 for Kubota RTV 900 models such as the one shown here.
- Added equipment: \$6,500 for off-the-shelf slip-on unit.
- Grand total: \$19,500 to \$22,500, before taxes and other fees.

UTVs recommended by one slide-on unit manufacturer, based on load capacity, durability, etc.

- Polaris Ranger
- Kubota RTV
- Bobcat
- Kawasaki Mule
- Cushman Diesel
- John Deere Gator
- Yamaha Pro-Hauler
- Cub Cadet
- Honda Big Red

# Some things to remember when buying:

- Full-time four-wheel drive
- 500cc minimum for an ATV
- 15- to 25-gallon capacity is a good fit for an ATV (anything larger may be too unwieldy)
- 30- to 100-gallon capacity is a good capacity for a UTV (remember to check your cargo capacity before putting on a big tank)

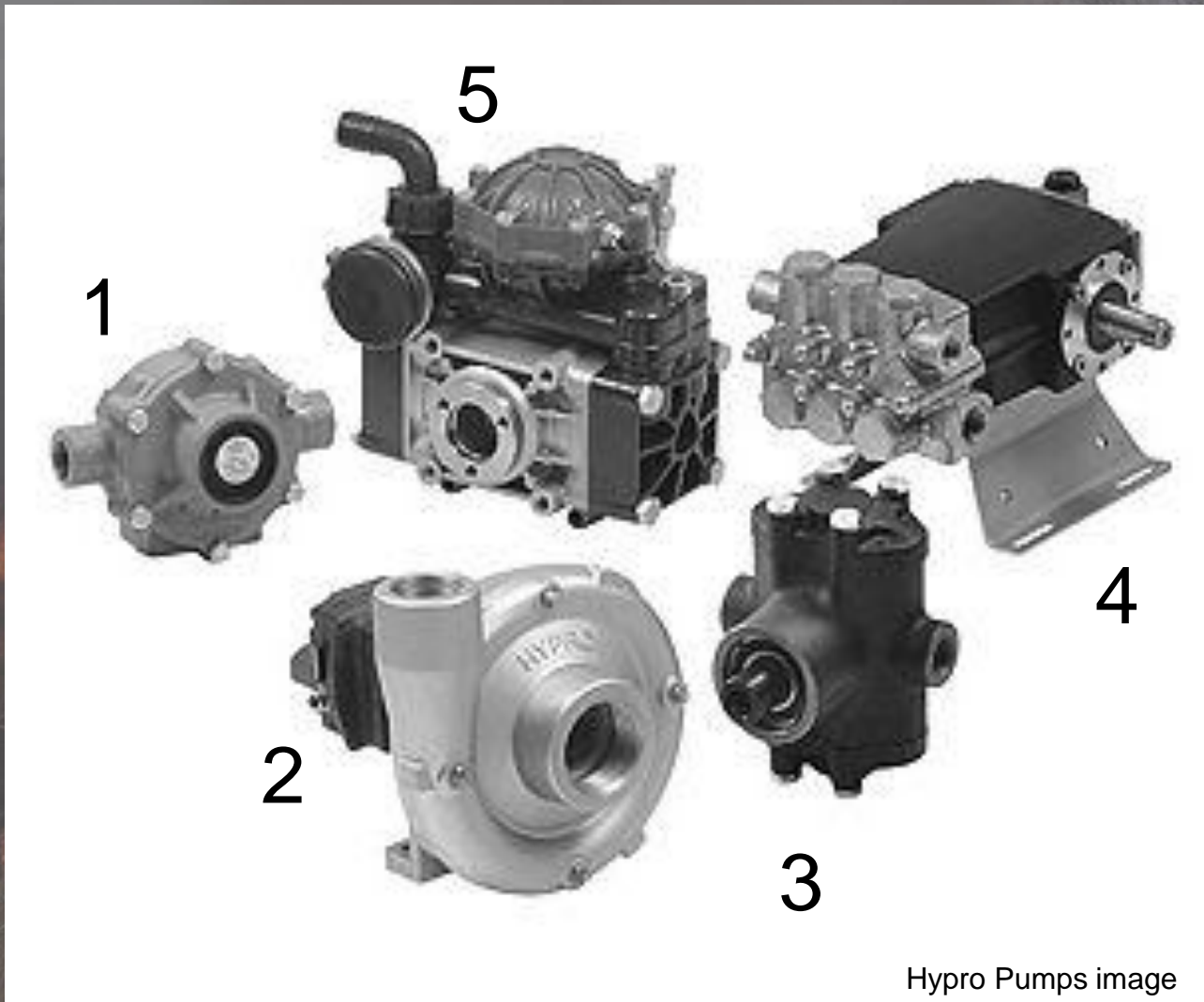


# Questions?





# Which pump is best for an ATV or UTV rig for prescribed burning or wildland fire duty?



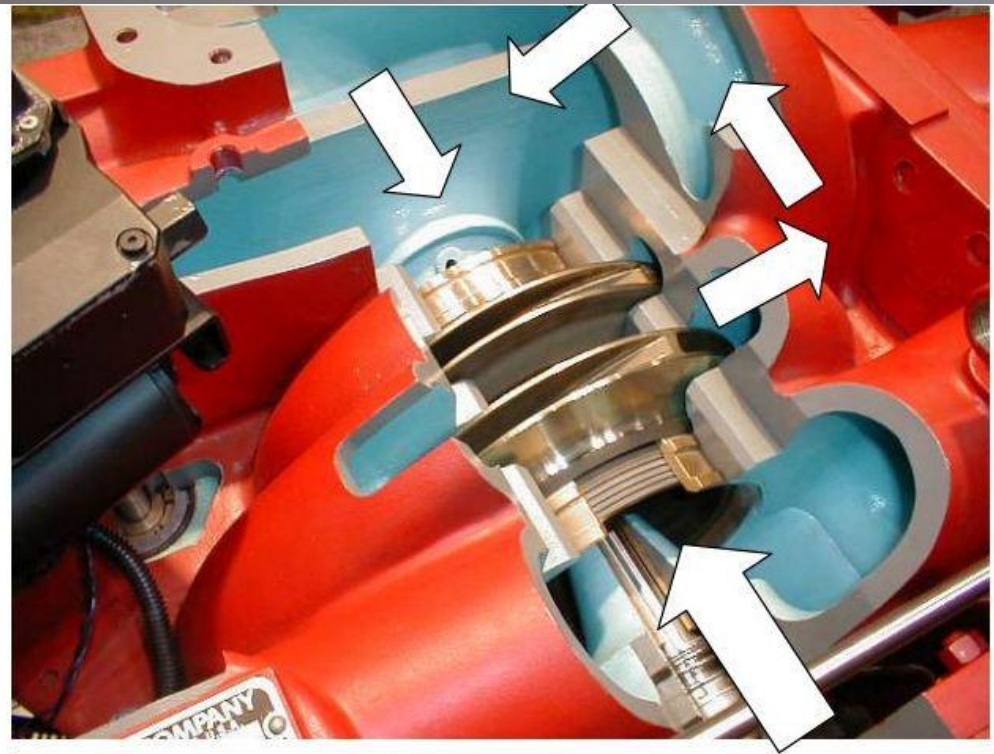
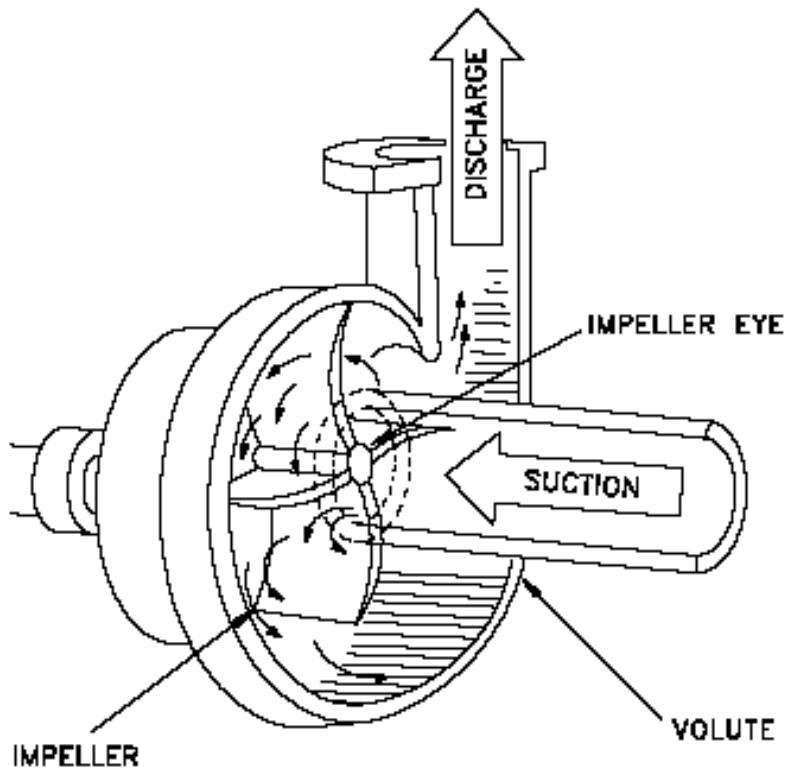
Hypro Pumps image

## Centrifugal pump

Low pressure, high volume

-- Single stage can pump 50 to 80 psi

-- Two stage will double that, to 100 to 60 psi



**Figure 6:** Two Stage Centrifugal Pump, Series operation water going from 1<sup>st</sup> impeller going back into 2<sup>nd</sup> impeller.

Two-stage pump increases pressure with approximately the same volume

# Diaphragm pump: Why it's a bad choice for prescribed and wildland fire duty



# Roller pump: A better choice for prescribed and wildland fire duty

## Innovation. At the Core of Every Delavan Pump.

Removable end plate enables field servicing. You can replace rollers on the spot—no shop service necessary!

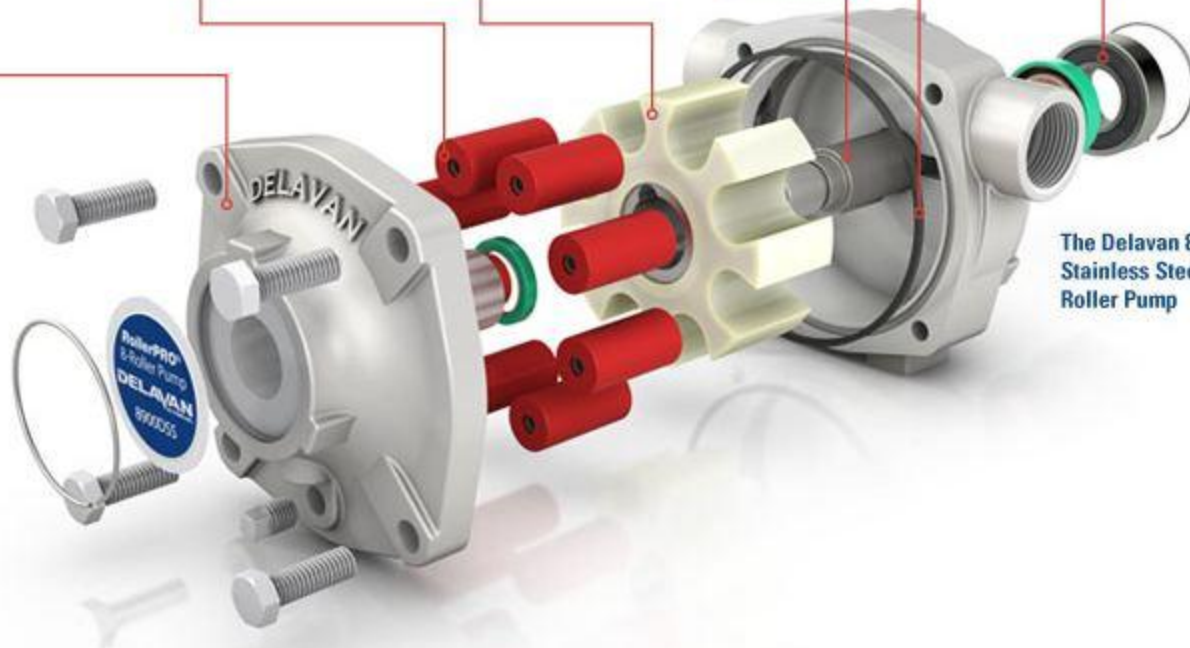
Ultra rollers are standard for improved performance, longer life and smoother operation. Glass-filled polypropylene rollers are optional.

Heavy duty stainless steel rotor with an overcoat of high performance composite increases efficiency and pump life.

Stainless steel heavy duty shaft assembly with an extra-fine finish minimizes seal wear.

Viton seal rings provide a positive seal between the end plate and pump body.

Heavy duty, permanently sealed bearings at the front and rear of the shaft.



The Delavan 8900  
Stainless Steel  
Roller Pump

## Wisconsin TNC

- 1994 Honda Foreman 350cc.
- 25-gal. rear tank
- 15-gal. front tank
- 12v electric pump with a capacity of 3-to-5 gpm at 50 to 150 psi.
- 100 ft. of ½-inch hose



- 1994 Suzuki 285 cc
- 15-gal. front tank
- 15-gal. rear tank
- 12v electric pump with a capacity of 3-to-5 gpm at 50 to 150 psi
- 50 ft. of ½-inch hose

## Dave Feutz's own rig

- Honda Foreman 400cc with oversize tires to handle extra weight
  - 35-gal. tank on rear
  - 15-gal. tank on front
  - 125 ft. of ¾-inch hose
  - Honda 6-hp gas engine with Hypro 6600 roller pump with adjustable pressure of 50 to 200 psi
- Trailer:
- 100-gal. tank
  - Honda 5.5-hp gas engine with Hypro roller pump
  - 75 ft. of 5/8-in. hose



## The Prairie Enthusiasts



- Honda Foreman ES 450cc ATV
- 15-gal. front tank
- 25-gal. rear tank
- Model 6600 Hypro roller pump powered by a Honda 6-hp, 4-cycle engine.

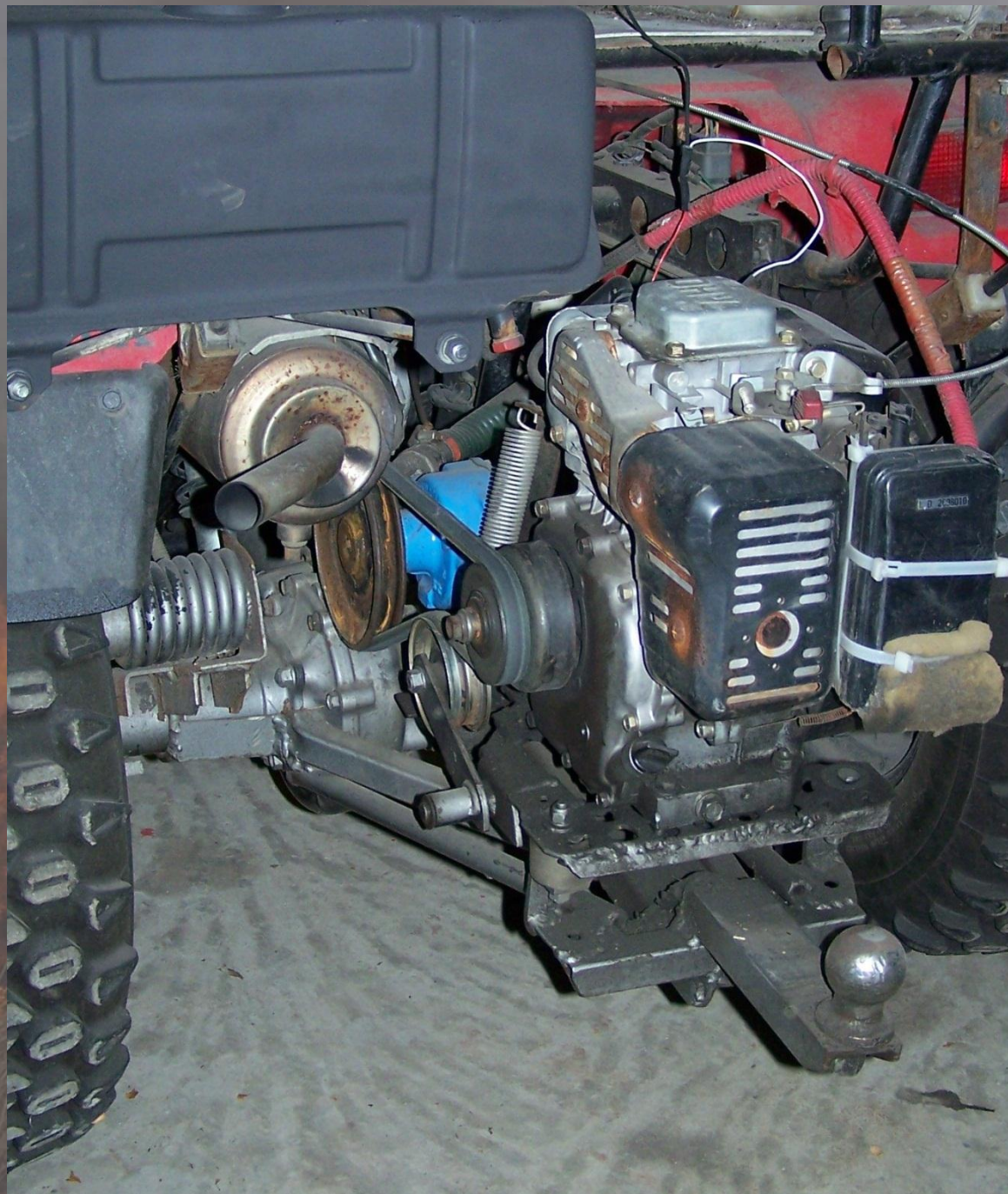
The Hypro has a 50- to 175-psi pump rating at 18 gpm max.

- Hose reel has 125 ft. of 1/2-in. hose.
- Rear boxes and front frame are aluminum
- Nozzles are Hypro spray guns with changeable flow rates

Dave's dedicated-use  
fire ATV





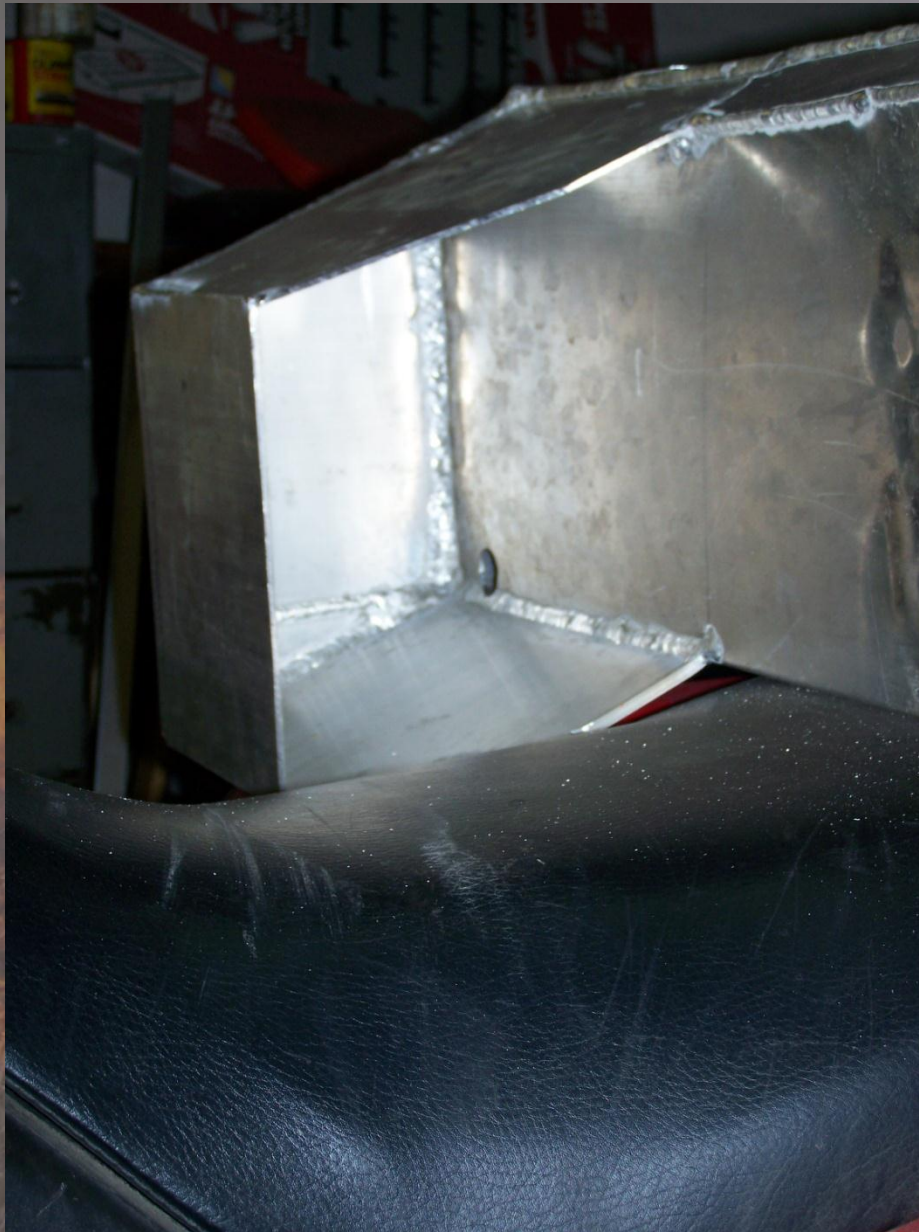




Tire comparisons with your safety in mind

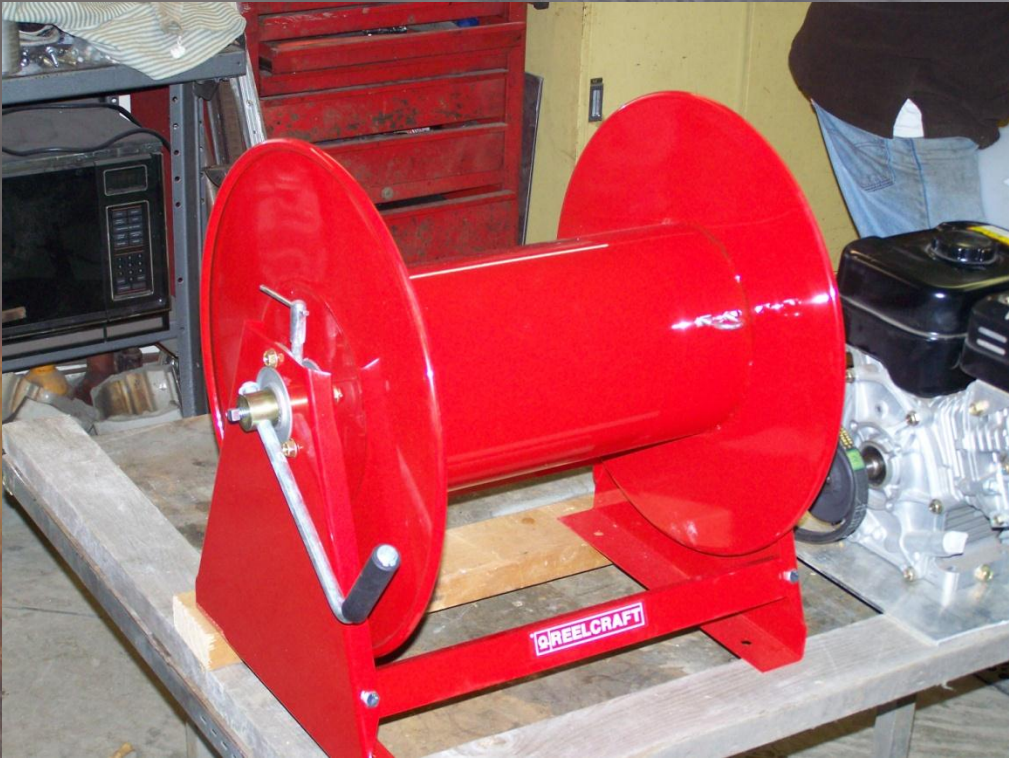
## Dave's roll-on/roll-off unit







# Add-ons for UTVs




Add-ons



## Nozzles

How you can make your firefighting water go farther and last a lot longer

What do they cost?




### JD9 Professional High-pressure Spray Gun

*Field-proven, reliable and effective*

This heavy-duty stainless steel gun is designed for professionals who spray pesticides, herbicides and water-soluble fertilizers. It is ruggedly built, precision machined and quickly adjusts from a fine mist to a long-distance stream. Ergonomic handle features a trigger-lock and a drip-free shutoff. Works with pressures from 5 to 1,000 psi. 3/4"-dia. garden hose thread with removable 1/2"-dia. insert. Comes with a 3- to 8-GPM nozzle. Additional nozzles sold separately. Imported.

	<u>Item No.</u>	<u>Price</u>	
JD9 Handgun	<b>200095</b>	\$139.50/ea.	<i>Optional nozzles available from 0.3 to 19 GPM</i>
0.3-1 GPM Nozzle	<b>139452</b>	13.75/ea.	
1-3 GPM Nozzle	<b>139453</b>	13.75/ea.	
2-5 GPM Nozzle	<b>139454</b>	13.75/ea.	
3-8 GPM Nozzle	<b>139455</b>	13.75/ea.	
10-19 GPM Nozzle	<b>139456</b>	13.75/ea.	



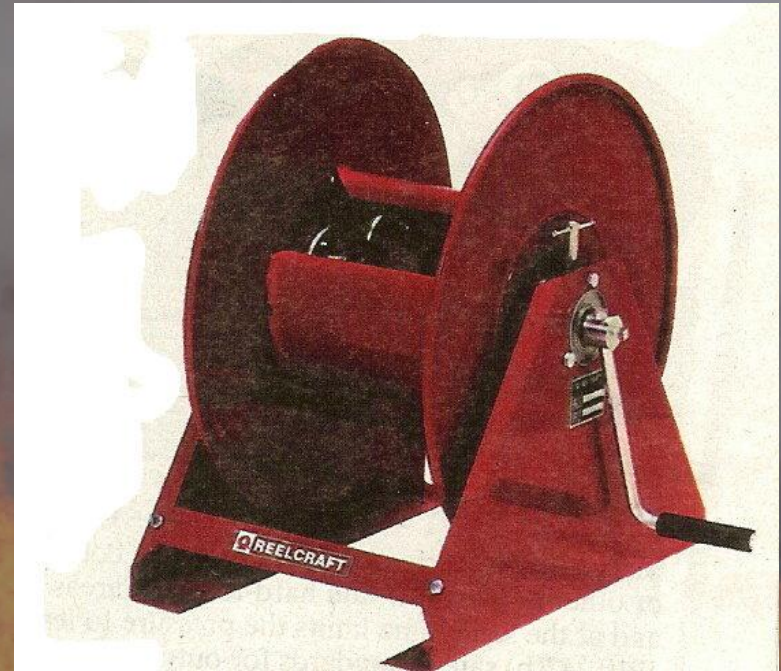


## Hose and reel

What you should look for  
and what to watch out for

What do hoses cost?

What do reels cost?



## Wisconsin DNR Polaris Ranger 6x6 and John Deere Gator



## Florida TNC – Disney Preserve

- Fuel models 2,4,7
- 3,000 acres a year at the preserve. Assist partners on 7,000 more acres
- Mid-April to mid-July at the preserve and assist others throughout the year
- UTVs used for both ignition and suppression.

### Polaris Ranger 500

- Fire extinguisher
- 50-gal. aluminum tank
- Wick 100 2.5 hp Honda centrifugal pump, 50-55 psi
  - 50 feet of  $\frac{3}{4}$ -inch rubber hose on Hannay reel with spray gun. 7 feet of  $\frac{3}{4}$ -inch rubber hose with spray gun in cab
- Guzzler hand primer
- 5 gallons of torch mix
- 2 gals. regular gas
- 1 to 2 drip torches
- 5-gal. water cooler
- Draft hose and check valve/strainer
- 50 feet of  $\frac{3}{4}$ -inch flat hose and garden hose nozzles.
  - Tool Bag, bolt cutters, hose clamps, etc.



*"The Ranger fire units are the primary workhorse on all of our fires. They are extremely mobile and are great for initial attack. You can put out a lot of fire with these 50-gallon units. They are also great for ignition and just moving people around on the fire line. I could not imagine not having them on a fire."*

-- Neil Clineman, Disney Preserve Field and Fire coordinator

## Florida TNC – Lake Wales Ridge Program

- Fuel models:  
2,3,4,8,9
- 20,000+  
acres, about 80  
fires per year
- Year-round  
burning, emphasis  
on growing  
season
- ATVs/UTVs used  
primarily for  
suppression, some  
ignition



- Polaris Ranger  
700XP 6x6
- Rear cargo  
box replaced  
by aluminum  
deck
- 70-gal.  
aluminum tank
- 2.5 hp Mini-  
Striker pump
- 75 feet of 3/4-  
inch hose
- 5 gals. of  
torch mix
- 1 gal.  
regular gas
- 1 to 2 drip  
torches
- 5-gal. water  
cooler

*“We use ATVs and UTVs extensively; in fact they've become our most useful tool.”*

**-- Adam Peterson, Fire & Land Management Specialist**

## Georgia TNC

- Polaris Sportsman and other models used almost entirely for ignition
- 10-gal. front tank holding torch fuel
- Igniter wand attached to tank shoots fuel over a wick. Wand can switch from right side to left side and is shielded to keep from blowing out.
- 5-gal. water tank at rear



Georgia TNC burns about 5,000 acres per year

## Illinois TNC –

## Nachusa Grasslands

- Fuel models 1, 3, 8
- 3,000 acres per year
- November and March and April
- UTVs used for suppression



The Grasslands Preserve operates six Kawasaki Mules, John Deere Gators and Polaris Rangers, all with 50-gal. water tanks and diaphragm pumps

## Nebraska TNC –

### Niobrara Valley Preserve

- Fuel models 2, 4, 9
- 3,500 acres per year
- Fall, winter, spring burns
- 3 ATVs used for holding, lighting, patrol, (and watching for large resident mammals such as those in this photo)
- Only one has a water tank, a 30-gal. weed sprayer with a small-capacity pump
- (



## Nebraska TNC – Platte Preserves

- Fuel models 1 and 3
- 600 acres per year
- Most burns are in spring
- 3 ATVs used for ignition and suppression



### Polaris Sportsman 500

- 120-gal. tank on trailer, with a high-pressure low-volume pump with a spray hose to the driver
- 2 gals. of gasoline
- tool rack, backpack sprayer
- Burn boss ATV has a 24-gal. water tank



## Oklahoma TNC

- Fuel models 1, 3, 5, 9
- FY08: 32 prescribed burns on 26,000 acres and assistance on partner burns on 46,000 acres
- Spring, summer, fall
- Suppression and ignition

--15 ATVs equipped with either a 65-gal. trailer or a 12-gal. tank on the back rack

-- 5.5 hp Honda engine for pump on 65-gal. rig

-- Hypro roller pump (18.2 gpm @ 1000 rpm)

-- Trailer axle wider than ATV for stability uses 15-inch tires to improve ground clearance



*“Our ranch hands have built four of these things, primarily for sericea lespedeza spraying, but also for use during our prescribed burns (they work well for patrolling the fire line and attacking skips).”*

-- **Bob Hamilton**, Oklahoma TNC fire manager

## North Carolina TNC

Fuel models 2, 4, 6, 7, 9  
-- 2,500 acres  
-- January-March  
-- ATVs and UTVs used  
for suppression and  
ignition

2 Honda 350 ATVs and 1  
Polaris Ranger UTV  
-- ATVs have 15-gal. water  
tank  
-- UTV has 50-gal. water  
tank



## South Dakota TNC

- Fuel model 3
- 2,000+ acres per year
- Mostly spring burns
- Ignition and suppression



## Polaris Sportsman

- 50-gal. water tanks
- Mini-Striker pumps
- POK foam sticks
- AND a donated truck used to haul two UTVs and all the equipment needed for a burn



## Texas TNC

- Fuel models 1, 2, 3
- FY08 16,092 acres on TNC and partner lands and 19,000 acres at Ft. Hood
- Year-round burning with half or more from January to March
- Suppression and ignition



- 15 ATVs, 5 UTVs
- ATVs have ag tanks of 15- to 25-gal. capacity
- UTVs are Polaris Ranger 6x6s with 60- to 75-gal. tanks and one Kubota RTV-900
- UTV pumps are single-stage centrifugal or positive-displacement low-volume pumps outputting 8 to 10 gpm at 70 psi.
- drip torches, hand tools, coolers, and extra fuel

## Ready to roll

Factory-built wildland firefighting vehicle based on Polaris Ranger 6x6 UTV



- 125 gals. of water in front and rear tanks
- Rear spray boom extends from 4 to 10 feet and is spring-loaded to swing out of the way when it encounters trees or posts
- Set up to draft from streams, etc.
- Can tow 1,225 pounds



Πυροσβεστική Μοτοσυκλέτα BMW -





