

WIND READING EQUIPMENT©

PART I – WIND FLAGS

by

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2 OCTOBER, 2017 Rev 0

INTRODUCTION

If you think that, in this article, I'm going to tell you what type of wind reading equipment is best, you're wrong. I'd like to. But I can't. No one can.

Picking wind reading equipment, like picking a girlfriend or picking a car, is completely personal.

One thing I can tell you --- no one single piece of wind reading equipment is perfect. They all have their advantages, disadvantages, and limitations. What I hope to do in this article is describe various types of wind reading equipment and discuss the advantages, disadvantages, and limitations of each type.

PURPOSE OF WIND READING EQUIPMENT

It's vital that you understand the purpose of your wind reading equipment. It has only one purpose --- to give YOU the most precise information possible regarding the direction and speed of the wind in real time. It must provide YOU with visual information that YOUR brain can process into the correct hold-off of your crosshair on your target. Notice that I capitalized "YOU" and "YOUR" in the previous sentences. Your brain doesn't process information in the same way that my brain does. That's why wind reading equipment is so personal.

Unfortunately wind reading equipment doesn't actually give you any directly applicable information. It merely moves in the wind. Your mind must interpret what your eyes see of that movement. A piece of wind reading equipment that your brain might be able to interpret well, my brain might not be able to interpret at all.

Wind reading devices can be seen in an infinite variety of sizes, shapes, and designs. Not only are several companies selling them, but enterprising shooters often design and produce their own.

The most popular pieces of wind reading equipment are Wind Flags and Windicators. Let's discuss typical wind flags and windicators in detail.

In Part I of this article, we'll focus on wind flags. In Part II, we'll address windicators and other equipment.

DEFINITION OF A WINDFLAG

A wind flag is a wind reading device that pivots horizontally around a central pin. It normally has features that give **qualitative** indications of both wind speed and wind direction.

VARIETIES OF WIND FLAGS

Heads

Wind flags can be seen with a multicolor ball on the front, or a model airplane prop, or a mylar prop, or a garden daisy wheel prop, or a cooling fan prop, or nothing at all.

A ball assists in determining wind direction. A prop assists in determining wind speed.

Mylar props are lightweight. They react very quickly to changes in wind speed. But they are normally only found on relatively expensive flags.

Model airplane props are also lightweight. They are inexpensive and easily replaceable if you break one. But they are much smaller, and therefore less visible, than mylar props.

Daisy wheels are much heavier, with much more inertia than mylar or model plane props. But they are easily visible and cheap to replace.

Cooling fan props are heavier than mylar or airplane props. But they are much smaller and lighter than daisy wheels.

Vanes

Some wind flags have only a single vane. Others have two vanes. I think the direction of the wind is easier to read with two-vane flags. But two-vane flags are bulky and more cumbersome to transport than single-vane flags.

Shooters who use single vane flags observe the apparent change in shape of the flag to assess wind direction.

Shooters who use two-vane flags assess wind direction based on the amount of the far vane that shows from behind the near vane.

Regardless of whether you purchase single or double vane flags, the opposite sides of the vanes should be in easily visible, completely different colors. Bright orange and bright green are popular colors. In fact, many shooters don't even think about whether a wind is from the left or right. They just say it's a green wind or an orange wind.

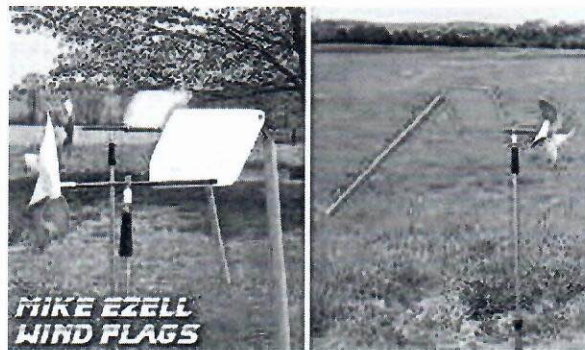
Tails

The two most popular tail materials are surveyor's marking tape and Sail Tails.

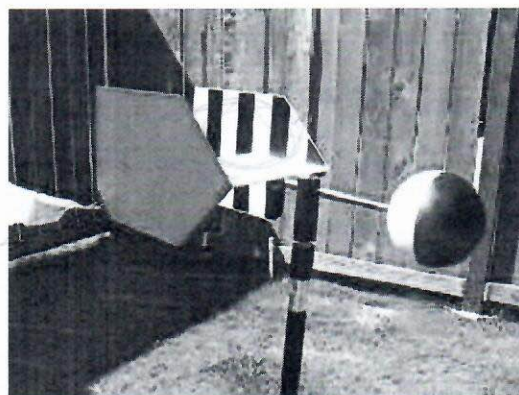
Surveyor's tape is lightweight and moves in even the slightest breeze. But it "maxes out" quickly in higher winds. And it flutters violently, making its true position hard to determine.

Sail Tails aren't as sensitive as surveyor's tape, but they are stiff which makes their true position easier to read and they are readable in higher wind speeds.

NOTE: Sail Tails are heavier than surveyor's tape. So if you switch from one to the other, you may need to rebalance your flags. Fortunately, most flags can be moved forward and backward on their pivots, so rebalancing is feasible.



*These wind flags have single vanes, mylar props, and Sail Tails.
The two different colors on the props assist in reading both wind speed and wind direction.
Note the different colors of vanes available. Pick colors that you can see easily.
Also note the stiffness of the Sail Tail.*



*This wind flag has double vanes and a ball on the front.
Note the vertical bars on the inside of the far vane.
The double vanes, vertical bars, and colors of the ball all help gage wind direction more accurately.
But only the tail (barely visible on the left) gives any wind speed information.*



*This single-vane wind flag has a daisy wheel propeller.
Note that two blades are painted black to assist in determining rotational speed.
Also note the flexibility of the surveyor's tape tail.*

ESSENTIAL WIND FLAG FEATURES

Good wind flags have at least one feature that indicates wind velocity and one feature that indicates wind speed. Make sure that when you select your wind flags, they have **at least** one feature from each of the two lists below that YOUR BRAIN CAN QUICKLY AND PRECISELY INTERPRET.

Wind Velocity Features

1. Propeller speed
2. Tail angle

Wind Direction Features

1. Ball color
2. Propeller color
3. Single vane apparent shape
4. Double vane apparent angles

Which Is More Important --- Wind Direction Or Wind Speed?

It's somewhat of a trick question. They are both important. But wind direction seems to be more important with head winds and tail winds. Wind speed seems to be more important with winds that are coming across the range from right or left.

Weight Matters

Most shooters want their wind flags to be as sensitive and responsive as possible. All other things being equal, less weight means less inertia, which means faster reaction time and more sensitivity.

Things To Look For

When you are looking at other folks wind flags, look for their visibility, their colors, the wind speed range that they can handle, their reaction time to changes in wind speed or direction, and most of all your ability to convert what you see to hold-off on your target.

How many wind flags do you need???????

Once again, the answer is “it depends on your brain”. The more flags you use, the more information you have available. Because the wind can vary in the distance between your muzzle and your target, more flags allows you to see those wind variations in more detail. But at some point, you get “data overload”. For me, data overload comes at more than four or five flags. Three flags don’t provide enough data and six is more than I can quickly interpret.

WIND FLAG STANDS

You’ll see wind flags supported by one of two types of stands ---- tripod stands or “step in” stands.

Tripod stands are, just as their name implies, tripods. Some shooters use music stands. Some shooters use microphone stands, and some use camera stands. Music stands are the lightest and easiest to transport. But they are more likely than other tripods to blow over in a strong wind. So you might need to carry weights to add to them for stability. I use microphone stands. They are heavy. But I don’t have to carry extra weights. And I’ve never had one blow over.

A “step in” stand is merely a rod with a pointed end that’s shoved into the ground. Step in stands are lightweight and easy to transport, but they don’t work well in rocky, hard, or frozen ground.

Regardless of whether you use tripods or step in stands, they will need to be adjustable for height. You want your flags to be as close to the line of flight of the bullet as possible. Uneven terrain at various ranges means that you’ll need to adjust the heights of each of your flags accordingly.

Wind flags are most sensitive when they are level. So you’ll need a way to level your stands. Tripod stands can be leveled by slipping a tapered piece of 2”X4” board under the low foot. Step in stands just have to be pushed in vertically.

AROUND AND AROUND. UP AND DOWN.

Some ranges have physical features that cause lots of vertical air movement. The benches at Oak Hills Gun Club sit on a 2-foot high berm. Other ranges may have a dirt backstop at 25 yards. The Benchrest Rifle Club Of St. Louis (where the ARA National Tournament is held annually) has a ditch in front of the right end of the firing line. Vertical winds on ranges such as these can be difficult to read with normal flags that are only designed to read horizontal changes in wind direction.

One unique type of wind flag was designed to handle these conditions. It’s called an “uppy-downy”. It sits on two pivots. One pivot allows the flag to rotate horizontally (just like an ordinary flag). The other pivot allows the flag to rotate up and down. If you often shoot at ranges that cause lots of unexpected up and down misses, you might want to add a few “uppy-downys” to your equipment.

A CONFESSION

I have great difficulty interpreting wind flags, especially wind speed. I’m the left-brain analytical type. If I could find a wind flag that would read out prop speed on a tachometer at my bench, I’d be unbeatable. (But I haven’t found one --- which may explain my limited success.) I suspect that right-brain artistic folks may be better able to interpret the **qualitative** information their wind flags are showing them. (That’s my excuse and I’m sticking to it!)

Because I can't read a spinning prop or flapping tail and determine that I need to hold at 2 o'clock on the 50 ring, I'm a fan of windicators. They give me **quantitative** information on wind speed that my brain easily processes. I'm excited to discuss them in Part II of this article.

Keep watching this site for future articles that will improve your benchrest shooting prowess.

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PART II – WINDICATORS & OTHER EQUIPMENT

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PURPOSE OF WIND READING EQUIPMENT

It's crucial that you keep in mind the purpose of wind reading equipment. So I'm going reiterate that purpose from Part I of this article.

It's vital that you understand the purpose of your wind reading equipment. It has only one purpose --- to give YOU the most precise information possible regarding the direction and speed of the wind in real time. It must provide YOU with visual information that YOUR brain can process into the correct hold-off of your crosshair on your target. Notice that I capitalized "YOU" and "YOUR" in the previous sentences. Your brain doesn't process information in the same way that my brain does. That's why wind reading equipment is so personal.

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DEFINITION OF A WINDICATOR

A windicator is a wind reading device that pivots vertically around a central pin. It gives a **quantitative** indication of wind speed.

VARIETIES OF WINDICATORS

Self-Standing

One style of windicator stands on its own separate tripod. These windicators are generally large and easily seen. But they are one more device that you must carry on and off the range.

Wind Flag Pole Attached

A second style of windicator attaches directly to the wind flag's tripod stand. These windicators are typically smaller than the self-standing type. Thus, they may be less visible. The good news is that they don't increase the number of wind devices that you need to carry. And, they are directly in line with your wind flags. So, it may be easier to see both your flags and your windicators at a quick glance.

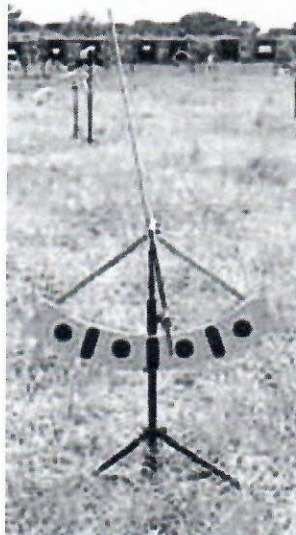
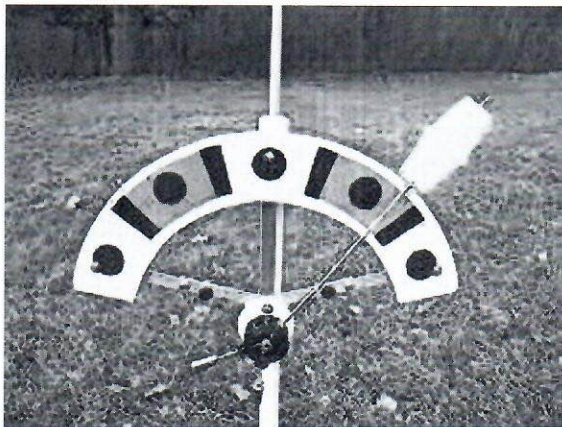
Wind Flag Attached

A third style of windicator is integral to a wind flag. These windicators turn with the flag whereas the first two types of windicators don't.

The first two styles of windicators only show the crosswind component of the wind. They don't move at all in a direct head wind or tail wind. And they only show part of the wind strength for winds that angle across the range. Some shooters argue that these windicators relate best to the bullet's lateral wind drift because it's only the crosswind component of the wind that causes the bullet to drift laterally.

The third style of windicator rotates with the wind flag, so it shows the actual value of the wind, regardless of wind direction. These windicators are popular with shooters who want to see the full value of the wind regardless of wind direction.

You'll have to decide which style works best for you.



These exemplify typical windicators. Note that they give QUANTITAVE wind information. Other windicators may differ in design. But the concept is the same for all of them.

WIND FLAGS VS. WINDICATORS

As I mentioned in my definitions, wind flags only provide qualitative information. At least I've never found any way to look at a spinning prop or flapping tail and say I should hold off this much. And if the prop begins to spin faster or the tail flap more, I have no idea how much more to hold off.

Windicators, on the other hand provide quantitative information. Look at the left hand pic above. I'd argue that every time the indicator is on the outside black line, the wind speed is the same as it was the last time the indicator was on the outside black line. That, to me is quantitative data. My brain can understand that input. Every time the windicator is on that black line, I know where to hold on the target.

Wind flags have another shortcoming. If the prop turns into a blur and the tail stands straight back in a 10 mph wind, the prop is still just a blur and the tail still stands straight back in a 20 mph wind. In other words, wind flags have a relatively small range of winds for which they can provide any data. And there's little you can do to change a wind flag's sensitivity.

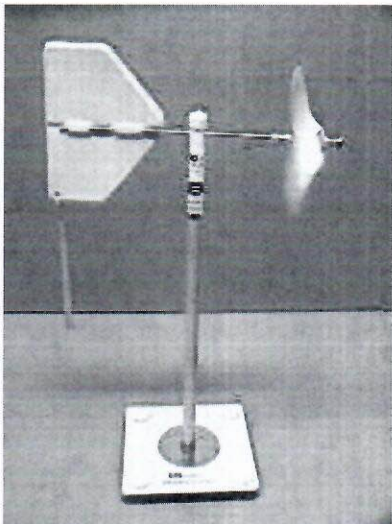
Windicators, on the other hand, generally have an adjustable counterweight on the indicator bar. That counterweight can be adjusted to make the indicator more or less sensitive. Admittedly, you can't adjust your counterweight in the middle of a target (or probably even between targets). But if you know the wind forecast for match day, you can adjust your windicator's sensitivity for the anticipated conditions.

Of course self-standing and flag stand attached windicators are completely useless in headwinds and tailwinds.

My conclusion is that a shooter needs both wind flags and windicators.

TABLE TOP EQUIPMENT

Some competitors place table-top wind flags on their benches. Other competitors watch an electronic wind speed monitor. I don't use either because I think that the wind swirls so much around the roof and benches that a flag at the bench doesn't give much true information. If I want wind information at the bench, I just feel it on my body. (Apparently, other shooters would disagree.)



Here's a cute table-top wind flag.



Some folks even have an electronic wind speed meter.

THE MOST SENSITIVE WIND READING DEVICE IS.....

Your own body. Always be aware of what the wind on your body is telling you. Often your body will sense changes in the wind (especially changes in light breezes) much more quickly and precisely than any mechanical device can.

If your wind flags don't change, but you feel a change in the wind on your body, be very careful!

SELECTING YOUR WIND READING EQUIPMENT

I can tell you from personal experience that the wind reading equipment you use can make a major difference in your scores. So I highly recommend that you go to several matches and closely study every type of wind reading equipment on the range before you invest in your own. As you look at each piece of equipment moving in the wind, ask yourself how well you could interpret that piece of equipment's movement and convert it into the necessary hold-off on a target.

Whatever wind flags you purchase, I suggest that they all be identical. And the same with your windicators. It's hard enough to read a line of identical flags. If your flags differ from one another, it's far more difficult to read them.

In a subsequent article, we'll discuss shooting in the wind.

Keep watching this site for future articles that will improve your benchrest shooting prowess.

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