

Using your Handspun Yarn in a Project: How do you calculate how much you will need?

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This is an important question to avoid the heartbreaking possibility of running out of yarn before your woven yardage (or your knitted jumper) is the right length! Although in some circumstances you may be confident of ready access to additional suitable fibre, it is more efficient and reliable to spin *all* the required yarn for a project before you start weaving or knitting, ideally over a fairly short period of time to achieve consistency of spinning, and so that the skeins can be subjected to similar resting periods, finishing and dye processes.

Weaving Yarns

For this article I'm assuming you will have woven and finished a satisfactory sample from your proposed yarn, determining sett (both ends per cm and picks per cm), draw-in and shrinkage as part of this exercise (i.e. measuring the width of the warp in the reed, then measuring your sample on and off the loom, and finally after finishing). Record a detailed set of measurements at each stage, even if you don't think you will need them.

First, calculate the length and width of the woven cloth you require. This may be critical if you need to fit pattern pieces, or approximate for say a scarf or a wrap. I have used cm for this illustration but of course measurements could be imperial; just don't mix the two! The calculation which follows includes both warp and weft requirements, and an additional small 'final' sample. It's easiest to use a calculator for the mathematics.

There is always a reduction in the width of the cloth from the width in the reed and the width of the woven cloth after finishing, due to draw-in (on the loom) and shrinkage (on finishing). The width in the reed must be *increased* from the required width to allow for this. The increase in width required can only accurately be assessed by sampling but, very roughly, *could* be typically 10-20%. For this example, I've assumed that the total increase in width required is 20%, so to calculate the width in the reed you will need to multiply your required width by 1.2.

Equally, the warp length to be wound for a specific finished length of cloth needs to increase from the length required (draw-in/shrinkage), plus an allowance for loom waste at each end of the woven length, and (optionally) a final small sample*. As with the width measurements, the draw-in and shrinkage (i.e. length of woven cloth on the loom compared to the length of the woven cloth once cut off the loom and after finishing) can only be accurately measured by sampling. For this example, I've again adopted 20% as the increase needed so that the required woven length is again multiplied by 1.2.

*This is useful as a final check of sett, handle of cloth, etc. over the whole width of your cloth, especially if your original sample is much smaller than your intended project.

Required length of piece, excluding fringes (if applicable) = A cm

Required width of piece = B cm

Sett = ends per cm (established by spin and weave sampling)

Length of yarn required for Warp

Multiply the width in the reed (B x 1.2) by the sett (ends per cm) and by the warp length A.

Multiply this figure by 1.2 to allow for take-up and shrinkage. Then add to this figure an extra warp allowance for loom waste** and (optionally) for a final sample. (Note that if you're weaving a scarf/wrap with long fringes, these may come out of the loom waste.) To do this, multiply your extra length required by the width in the reed (B x 1.2) and by the sett.

**This will vary according to your loom, but as a rough rule of thumb, 70cm should be ample.

Length of yarn required for Weft

This is calculated by multiplying the width in the reed (B x 1.2) by the length of cloth which has to be woven to give the required finished length (A x 1.2) after allowing for take up and shrinkage (see previous paragraph). The resultant figure is then multiplied by the picks per cm.

Additionally, as the weft does not follow a straight path across the warp, but instead moves alternately above and below the warp ends, an allowance needs to be made for 'take-up'. Ideally this could be checked by measuring the length of yarn required to weave a single pick and comparing this with the width of the warp in the reed, but as a rule of thumb an allowance of 10% could be made.

Therefore, to calculate the full length of weft yarn required, multiply the result from the first paragraph by 1.1.

Note: measure the length of your handspun yarn *after* finishing your skeins, to ensure you have enough for the project. I recommend *always* spinning slightly extra (say a minimum of an extra 50m) than you think you will need.

Knitting Yarns

As with weaving yarns, your starting point will be the sample, or 10cm x 10cm tension square as required by a commercial knitting pattern, that you knitted to check your needle size and to determine whether any adjustments in stitch numbers are required to give the required end result.

Once you have finalised your choices, knitted and 'finished' a satisfactory tension square, you could either unravel the knitting and measure the length of yarn used by winding it onto a swift, or you could measure the length of the skein before and after knitting the sample to determine the quantity used.

Roughly sketch out the component parts of your project (i.e. a simple dropped shoulder jumper), adding dimensions to the sketch. For example, the back and front may each roughly measure 70cm x 53cm overall (not deducting the neck opening on the front part). The sleeves obviously taper, but with a length of 44cm, a cuff width of 16cm and a shoulder width of 42cm, each sleeve could be estimated to measure on average 44cm x 29cm.

The approximate total area of the knitted parts = $2 \times (70 \times 53) + 2 \times (44 \times 29) = 9,972 \text{ cm}^2$

Then divide this area by the area of your tension square (normally 10cm x 10cm, i.e. 100 cm^2). The result equates to the approximate number of knitted tension squares which would be needed to complete your jumper. In the example above, this figure is 99.7.

The total quantity of yarn needed can be calculated in two ways. Either multiply this figure by the length of yarn required to knit your tension square and you will have a rough approximation of the length of yarn required for the whole jumper, *or* weigh the length of yarn needed to knit your tension square and multiply this weight by the number of tension squares needed for the project, as calculated in the previous paragraph, for the total weight of handspun yarn required.

As with the weaving calculations, always spin *at least* an extra 50m of yarn than you calculate you will need, especially as the calculation method for knitwear is intrinsically less accurate than for woven yardage, due to the shaped components.

Do not rely on the prescribed quantity of mill-spun yarn required by a knitting pattern. Handspun yarns vary greatly according to fibre type, preparation and spinning methods; a denser, heavier yarn may contain less length than expected, so it is very important to calculate your best estimate based on the way your handspun knits up in practice.

About the author: Christina has gained Certificates of Achievement in Spinning, Weaving and Natural Dyeing. She particularly enjoys using all three skills in single projects, and explored the benefits of this approach as part of her study for the Certificate in Advanced Textile Studies, gained in 2021. Her pieces have travelled across the globe with their new owners, and she also delivers talks and undertakes some tutoring.



Handwoven wrap from handspun Shetland and Hebridean wools

Photo: Christina Chisholm