

GUESSTIMATING SHRINKAGE

► **STRATEGY 1: DECIDE YOU DON'T CARE.** Many projects will work even if the size is slightly off. Does it matter whether that scarf is 9" or 8½" wide? Probably not. If you can stand losing a bit of the dimension and still have the item work, you can choose not to care about shrinkage.

► **STRATEGY 2: FIND A PUBLISHED PROJECT** where someone has already woven the item and measured the shrinkage. Weave exactly the same thing, with exactly the same yarn. The first limitation here is obvious: What if you can't find a pattern that's exactly what you want to weave? And what if you can't find that exact same yarn? If you only weave following someone else's strict recipe, you'll miss out on a lot of the adventure and artistry of weaving. Not only that, but even if you are happy following in another's footsteps, you might still find that your shrinkage is different from theirs. Factors such as the amount of tension on the warp, how tightly the weaver packed the weft into place, whether the weaver used a temple (page 83), and local humidity can all affect shrinkage. So even if you follow the directions exactly you may still end up with a different result.

► **STRATEGY 3: ADD 10 PERCENT TO EVERYTHING.** This is an amalgamation of strategies 1 and 2. If you look at a lot of rigid-heddle projects (such as the ones in this book), you'll see that the average shrinkage is around 10 percent most of the time. If you don't care too much about the final size, adding 10 percent is not a bad first guess. (One caveat: some weave structures and some yarns will shrink a lot more than 10 percent, so this method can lead to . . . surprises.)

► **STRATEGY 4: MAKE A SMALL SAMPLE.** Many weavers who want accurate information about the fabric they're going to end up with put a small sample warp on to test-drive the project without committing a lot of yarn. The problem is that a 2" wide warp weaves differently than a 12" wide warp, even if the yarn, loom, weaver, and weave structure are the same. The reason is two-fold. First, in a narrow warp the selvedge (edges) form a greater percentage of the cloth. Selvedges draw together tighter than the center of the warp, so when they form a larger percentage of the cloth, the overall cloth is more tightly packed, which means a denser feel and less shrinkage. The second factor is that a narrow fabric interacts with the beater differently than a wider fabric. There's less friction. So, weaving a small sample is good, but know that small samples can lie.

► **STRATEGY 5: MAKE A FULL-SIZE SAMPLE.** Hey wait! Isn't this what we were trying to avoid? Well, yes — and no. We want the accuracy of the full-size sample without having to weave the project twice. Here's how to do that: make your best guess as to what shrinkage is going to be (option 3), plan your project accordingly, and then add 1 to 2 extra yards to the warp. You'll use this extra yardage to weave a sample, cut it off, and then wash that sample to determine the actual shrinkage. Then you can add or remove warp threads from the project, until you get just the right amount to counteract your shrinkage. Not only do you get a full-size sample without having to weave it twice, you even saved having to wrap it twice, as in strategy 4.

► **IN MY OWN WEAVING, I TEND TO BOUNCE AROUND** between strategies 1, 3, and 5, depending on how precisely I need to hit the project's desired size.

SETT CHART

The following setts are guidelines for weaving plain-weave fabric of a moderate density. If you want a fabric that is dense or airy, you'll need to adjust the sett up or down, accordingly. If you are weaving a twill fabric, you'll want to use a sett that is approximately 20 percent denser than the plain-weave sett. Other variables that might make you want to try a different sett for your fabric include the weft you use, irregularities in the thickness of the warp, or a fuzzy warp. When in doubt, weave a sample.

KNITTING YARNS

<i>Super Bulky</i>	5 ends per inch
<i>Bulky</i>	6 ends per inch
<i>Worsted</i>	8 ends per inch
<i>DK</i>	10 ends per inch
<i>Sport</i>	12 ends per inch
<i>Fingering</i>	12 ends per inch
<i>Lace</i>	20 ends per inch (two 10-dent heddles)

WEAVING YARNS

<i>3/2 cotton</i>	12 ends per inch
<i>10/2 linen</i>	20 ends per inch (two 10-dent heddles)
<i>10/2 cotton</i>	24 ends per inch (two 12-dent heddles)
<i>20/2 linen</i>	24 ends per inch (two 12-dent heddles)
<i>20/2 cotton or silk</i>	36 ends per inch (three 12-dent heddles)
<i>120/2 silk</i>	144 ends per inch (6 threads in each hole and space of two 12-dent heddles)

threads in the same warp. This is why sampling is so fun; you can discover intriguing fabrics when you push the envelope.

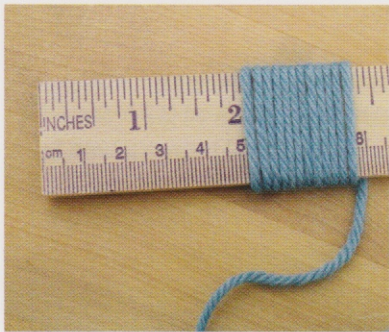
So, if sett can be too close, and sett can be too open, how do you know what sett to use for a given yarn? This is the question that weavers ask themselves at the beginning of every project, and there are several ways to get the answer.

SAY WHAT?

Weaving has its own terminology, which can be confusing until you learn what things mean. In this section, some terms to know are epi (ends per inch), which is the number of warp threads in one inch of warp width when the warp is on the loom, and ppi (picks per inch), which is the number of weft threads per inch of cloth length when the cloth is on the loom.

Together the epi and ppi define how densely woven the fabric is, and these factors vary depending on the thickness of the threads you're using for warp and weft. You'll see these terms used in the projects you'll find later in the book.

If you see a sentence about *sleying* fear not: it simply means the act of pulling a thread through the rigid heddle; no humans (or vampires) will be harmed.



WRAPS PER INCH. One method for estimating an initial sett is to wrap the yarn around a ruler until you've covered an inch or two of its length. Then count the wraps per inch, divide that number by two, and use that as a starting plain-weave sett. It's not a bad strategy, and I've used it with some success. The thing to be aware of when using wraps per inch to estimate sett is that you can vary the wraps per inch depending on how tightly you pull and pack the yarn. It's a simple method, but not very precise.

ASK SOMEONE. This method is the fastest way to get started weaving when you have to weave a project right now and don't have the extra yarn or time to bother with experimenting. Simply find someone who's woven with the yarn and weave structure you intend to use and ask them their sett and how it turned out. This is one reason that belonging to a guild of fellow weavers is valuable: you can share the work of experimenting with new yarns.

If you don't have weaving buddies to ask about sett, refer to the chart on the opposite page for guidelines for some commonly used yarns, or go to one of the following resources for further information.

- » Most introductory weaving books have a sett chart reference for common yarns.
- » Published projects in sources like *WeaveZine*, *Weaver's Craft*, and *Handwoven* magazines include sett information.
- » Online references, including *Handwoven* magazine's Master Yarn Chart, All Fiber Arts, and the New York Guild of Handweavers, provide sett information.
- » Online retailers, such as WEBS, Halcyon Yarn, and Yarn Barn of Kansas, often list suggested setts for the weaving yarns they sell.
- » Ask fellow weavers online through websites such as weaving Yahoo groups, Weavolution, and Warped Weavers on Ravelry.

(For web addresses for all of the above, see the appendix, pages 283-85.)

The downside is that if you consult an outside resource (such as a book or fellow weaver) you may find that your results differ from theirs because the yarn, your

loom, the way you weave, your weave structure, or the humidity in your house, differs from theirs. When looking up sett, I often consult several sources and take the most common suggestion. Even then, I consider that only a starting point. If the cloth is not turning out how I'd like, I change the sett in the middle of a project. (For more about that, see *Fabric That's Too Dense or Too Loose*, page 83.)

EXPERIMENT. There is no better teacher than the loom. If you keep records of your experiments, soon you'll have your own custom weaving reference, completely accurate for you and your loom. I keep records of everything I weave in a notebook beside my loom where I jot details about what I'm doing, changes to my original plan, and ideas for future exploration. Often I learn the most from my disasters, and sometimes they pave the way to innovation. (For a sample of the form I use for recordkeeping, see *Yarn Requirements*, page 39.)

A fun way to try out several alternate setts is to weave a sample, cut it off the loom, and re-thread the yarn onto a new heddle with a different sett to weave another sample. In this manner you can try out several setts and only wind the warp onto the loom once.

YARN REQUIREMENTS

Name of project: _____

Date: _____

Gift (optional): _____

Yarn used: _____

(brand)

(line)

(fiber content)

(weight)

(yardage)

(weight symbol)

Finished project dimensions: _____

Warp sett (epi): _____

Weft (ppi): _____

CALCULATING WARP

Allowing for draw-in

$$\text{finished width} \div [1 - (\text{draw-in as a decimal})] = \text{width in heddle}$$

Allowing for take-up

$$\text{finished length} \div [1 - (\text{take-up as a decimal})] = \text{length to weave}$$

Allowing for fringe/hem

$$\text{dimension to weave} + [2 \times (\text{fringe or hem length})] = \text{length of fabric on loom}$$

Total warp length

$$\text{length of fabric on loom} + \text{loom waste} = \text{minimum warp length} \div 36 = \text{warp length in yards}$$

Total amount of warp yarn needed

$$\text{width in heddle} \times \text{sett} = \text{number of warp ends}$$

$$\text{number of warp ends} \times \text{warp length in yards} = \text{total amount of warp yarn}$$

CALCULATING WEFT

Total weft picks

$$\text{woven length} \times \text{ppi} = \text{number of weft picks}$$

Total weft amount

$$\text{number of weft picks} \times \text{width in heddle} = \text{total amount of weft} \div 36 = \text{total yards of weft needed}$$

RECORD SHEET

Project _____

Warp yarn _____ yds/tube or skein _____ yds/pound
 (m/tube or skein) (m/kg)

Weft yarn _____ yds/tube or skein _____ yds/pound
 (m/tube or skein) (m/kg)

Heddle size _____

NUMBER OF WARP YARNS

Width of project _____ (inches/cm)

Draw-in and Shrinkage (10%) + _____

Total width on loom _____

Sett × _____ (EPI or ends/cm)

Number of warp yarns _____

YARN REQUIREMENTS

Warp: Length _____ inches _____ cm

Take-up and shrinkage (10%) + _____ + _____

Loom waste + 18 inches + 45 cm

Total length in inches/cm _____ inches _____ cm

÷ 36 ÷ 100

Total warp length in yards/m _____ yards _____ m

Number of ends × _____ × _____

Amount needed _____ yards _____ m

Weft: Width _____

Weft rows × _____ per inch _____ per cm

Weft yarn required _____ per woven inch _____ per woven cm

Length of project × _____ inches _____ cm

Total weft required in inches/cm _____ inches _____ cm

÷ 36 ÷ 100

Total weft required in yards/m _____ yards _____ m

EVALUATION of shrinkage, take-up/draw-in, and loom waste:

	width	length
On loom	_____	_____
Off loom	_____	_____
Washed	_____	_____