

## Milk Testing – *It doesn't need to be as intimidating as initially it appears to be!*



Are you interested in learning how much milk your doe produces in a given amount of time? Have you ever wondered how much butterfat and protein there is in her milk? Butterfat and protein content (also referred to as “components”) are important economically, as milk with an increased butterfat percent has increased value. Also, higher components equate to higher cheese yields! Another important fact, if the % butterfat decreases below the % protein in her milk, you might be concerned about “butterfat – protein inversion”, a symptom of rumen acidosis which can be a serious metabolic health issue if proper feeding isn’t restored.

The BASICS: What is milk testing? It’s easy, really. You are already milking the goats. How hard is it to take a sample or two from each doe and mail it off? Have you ever used a scale? Easy, peasy! The rest is just a matter of **quality control** and **documentation**, most of which is taken care of by the Association and Registry you have chosen to work with.

There are many reasons why someone might choose to go on milk test. Below are just a few:

- Record of production, components (% butterfat and % protein), and somatic cell count (SCC)
- Herd managements/feed decisions
- Breeding/culling decisions for dairy herd improvement
- Marketing
- Genetic evaluation\*
- Registry specific production titles, breed leader, sire development, and breed club recognition

Your first step in taking the plunge into milk testing is to define your own goals for milk testing as the requirements for testing can be few or many depending on your ultimate use of the information. Do you want the information solely for yourself for management and/or breeding decisions, or are you interested in also getting registry or club recognition of “official” lactations? If you are interested in registry program recognition, you will need to contact your registry/registries of interest for DHIR (Dairy Herd Improvement Registry) applications and details of registry specific requirements and fees. Links for various registry rules, applications, and other information are provided at the end of this article.

The next step is to contact one or several DHIAs (Dairy Herd Improvement Associations) for information on their services and fees. Ask if they provide shipping containers and milk sample ladles. Find out what fees are associated with joining the DHIA, what the cost of testing is per sample in addition to any minimum charges. What are the fees for return of shipping containers, and do they need to be returned to you for re-use? Also ask what other types of testing may be available in addition to percent butterfat and protein, and somatic cell count. What are the monthly herd fees? Which DRPC (Dairy Records Processing Center) options do they have available and what are their costs and services? Armed with this information, you can make an educated decision as to which DHIA you wish to work with. Be sure, however, that the DHIA you choose is approved by the registry you intend to work with as well. A link is provided in the resource section at the end of this article for the ADGA approved DHIA's as of 2015.

There are many different options for testing plans. Owners can do their own weighing, sampling, and sending samples to the lab for assay of butterfat, protein and SCC. If you wish to have registry recognition of your owner/sampler data, there are specific rules imposed by your chosen registry that you must adhere to. Your DHIA can provide you with the necessary training to conduct your own tests as an owner/sampler. Other plans include "standard testing", where you will need a person to come and weigh, sample, and mail samples to the lab, and "group testing" where several herds (three or more) share the duties of supervising each other during their milk tests. Each milk test consists of a pre-test milk out, and typically two additional milkings for a 24 hour record of milk production. There are test plans where the two milkings are both supervised, and also Innovative Test Plans in which only the last milking of the 24 hour period is supervised, weighed and sampled by someone other than the owner. All plans may not be available to goat herds at all DHIA's. For Verification Test purposes, there are three supervised milkings (the pre-test milk out as well as the typical 2 milkings ending 24 hours after the milk out). Your chosen DHIA can help you find a tester in your area and/or help you get someone or several people in your area trained so they can supervise your tests.

Below is a list of some of the available testing plans. My personal suggestion is to consider Standard test DHIR-20 if you have a supervisor willing to come monthly for both milkings to weigh and sample. If your supervisor doesn't have time for 2 milkings per month, consider ITP-02 in which the herd owner can take the first milking weight (approximately 12 hours after the milk out) and the supervisor will take the 2<sup>nd</sup> weight and sample at that time, with the supervised test alternating from the morning one month, to the evening the following month. Alternatively, consider the DHI-OS 40 if you plan to test yourself, taking both weights and samples. A supervised verification test may be required annually by your registry of choice for some plans, so be sure to check current applicable rules.

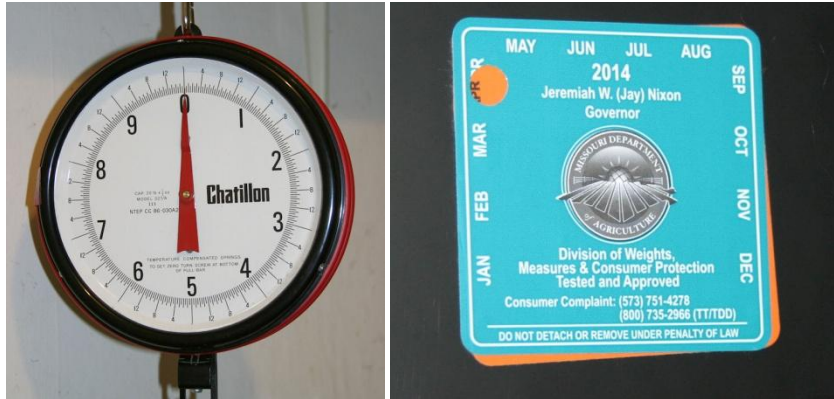
NCDHIP TESTING Plan Codes

Testing Plan Name	Testing Plan Tag	Type of Test Code for Data Processing	Description of Testing Plan
Official DHI	DHI	ITP-00	Every Other Month; Owner and supervisor alternate months collecting test day data. Owner weighs only and sends in barn sheets. Supervisor weighs and collects samples on alternate months.
Official DHI AM-PM with milking interval monitoring device	DHI-AP-T	ITP-01	One milking weighed and sampled each test day in 2x herd, milking; Owners and supervisor share responsibility for collecting test day weights alternating the AM and PM weighing each month. Supervisor also collects component samples when weighing. A time

			monitor must be installed.
Official DHI w/Alternate AM-PM Component Sampling	DHI-APCS	ITP-02	All milkings weighed and one milking sampled each test day, alternating the milking sampled (AM or PM) on successive tests. Owner and supervisor share responsibility for collecting test day weights alternating the AM and PM weighing each month. Supervisor also collects component samples when weighing.
Official DHIR	DHIR	20	Basic test plan. Supervisor weighs and samples both milkings on test day. Same protocol as DHI with additional rules imposed by breed associations.
Official DHIR AM-PM w/Milking interval monitoring device	DHIR-AP-T	21	Supervisor collects one test day weight, alternating the AM and PM weighing each month. Supervisor also collects component samples when weighing. DRPC will determine second weight. A time monitor must be installed. Same protocol as DHI-AP-T with additional rules imposed by breed associations
Official DHIR w/Alternate AM-PM Component Sampling	DHIR-APCS	22	Supervisor collects both test day weights. Supervisor also collects component samples alternating AM and PM samples each month. Same protocol as DHI-APCS with additional rules imposed by breed associations.
Official DHIR AM-PM	DHIR-AP	23	Supervisor collects one test day weight, alternating the AM and PM weighing each months. Supervisor also collects component samples when weighing. DRPC will determine second weight. Bulk tank comparison required. Same protocol as DHI-AP w/additional rules imposed by breed associations
DHI Owner-Sampler	DHI-OS	40	Dairy producer weighs and samples all milkings each test day

Tools:

1. Scale accurate to ounces or tenths of pound
  - a. If scale reads in ounces, you will have to convert to pounds & tenths of pounds
  - b. Scales must be annually verified for calibration through your DHIA or State Department of Agriculture Division of Weights and Measures. Provide your DHIA with the calibration reports for quality assurance purposes.
2. DHI ladle – ask if your DHIA provides one or if you need to get one from a restaurant supply
3. Sample vials with preservative (supplied by DHIA)
4. Parafilm for sealing vials without locking caps (optional) – available from laboratory supply outlets (prevents leakage of samples during air shipment to the lab; easier for the lab to remove than tape)
5. USPS Priority mail boxes to send samples without cost of return shipping for the shipping container (optional) – NOTE: USPS does not guarantee shipping time for Priority Mail.
6. Ziploc bags (optional) - to contain possible leakage of sample vials during shipment
7. Cold packs (optional) – to prevent extensive warming of samples during shipment
8. Shipping container (may be DHIA supplied)



Format:

Testing can be as informal as an owner recording milk weights at milking with some frequency or as official as standardized testing through Dairy Herd Improvement Registry (DHIR) with Dairy Herd Improvement Association (DHIA) certified test supervisors and data recorded with Dairy Records Processing Center (DRPC) and additional registry mandated rules required to qualify for production recognition. Even official American Dairy Goat Association (ADGA) DHIR testing does not require the herd owner to record every milk weight from every doe at every milking! Does can be on official test and still dam raise their kids if you would like. Does don't even need to be registered to go on milk test through unofficial DHI testing through your DHI Association! Lactations do not necessarily have to be carried out through an entire 305 days, and you can fit a testing frequency to your own schedule. Rules and requirements do vary with registry, so be sure to check for specifics with your registry of choice should you decide to test through a registry program.

Entering doe information on forms provided by your chosen DHIA:

- The breed code is separate from the registration number
- Herd Code number assigned by DHIA [00-00-0000] ~ [State - county or association - herd identity]
- Use 7 digit ADGA registration ID (especially important if you want genetic evaluations\* run) for doe, sire, and dam
- If the goat is not ADGA registered, your DHIA and/or USDA can assign a unique id number for your goat (genetic evaluations will not be done unless sire is Registered and *known* in the CDCB database)
- Breed Codes:
  - A – Alpine
  - B – Oberhasli
  - C - Sable
  - D – Nigerian Dwarf
  - E – Experimental
  - L – LaMancha
  - N – Nubian
  - P – Pygmy
  - S – Saanen
  - T – Toggenburg
  - U – Unknown

- X – Mixed Breed
- Enter milk weights in 10ths of pounds
- The test day is the date of the last weighing
- Ensure test code is accurate for the type of testing plan you have chosen

*Table 1* Overview of testing through various registries

	ADGA	AGS	NDGA	MDGA	TMGR	IDGR
Owner sampler plan?	Yes – AR or ST plan; Not qualified for Top Ten Recognition	Yes – O/S will not qualify for AR title (only ST); Not qualified for Top Ten Recognition	Yes – Requires Verification test for DAR, DLT & Top Ten	Yes - Not qualified for Top Ten/Top Five	Yes - Not qualified for Top Ten	Yes
Verification Test Required? <small>Note: VT may be requested by DHIA or Registry if situation/data indicates a possible rule violation.</small>	Required for owner/sampler, innovative test plans, or Top Ten Eligibility	Required for owner/sample plan between 50 and 160 days of each doe’s lactation	Required for owner/sampler, DAR, DLT, or Top Ten at 50-160d lactation	Required for all plans except Standard; Required for Top Ten/Top Five (between 90 and 159 days fresh for group test)	Required except for One Day, Standard & Group Test; Required for Top Ten	Possibly
Requires all does of a breed on test?	yes	yes	No – does may not exceed maximum height	Not stated in rules	Not stated in rules	Not stated in rules
Registry fee	1-5 does \$45 6-25 \$50 \$26+ \$75 (less \$5 for annual renewal)	\$15 per year plus \$1/doe on test	\$10 per year plus \$1/doe on test	\$15 per herd (\$10 renewal) plus \$1/doe on test	\$5 per herd plus \$2/doe	\$10 per herd plus \$1/doe
Data for genetic evaluations?*	Yes	Possibly	No	No	No	No
Does must be registered with listed registry?	Yes	Yes	Yes	Yes	Yes	Yes
Height Measurement Required?	Only if VT required; OH does ineligible for Top Ten; no OH designation for *M	Yes – OH does ineligible for Top Ten; designated *D OH if over height	Yes – does may not exceed maximum height to be on test	Yes	Yes	Yes – no award if does not meet height requirement for breed
Maximum test interval?	No	Refers to DHIA rules	Refers to DHIA rules	If > 45 days, lactation is considered “null and void”	No	45 days for 305 day butterfat award
Minimum test number?	Only for O/S AR (240 days in milk *AND* 8 tests)	No	No	Five tests completed to make the testing official	No	Weights measured daily

\* Bi-annual genetic evaluations of dairy goat production from yield data collected through the National Cooperative DHI Program and from pedigree data supplied by the dairy goat Registry(ies) are currently conducted by agreement between the

ADGA (American Dairy Goat Association) and CDCB (Council on Dairy Cattle Breeding), with transitory research support from the USDA (United States Department of Agriculture)/AIPL (Animal Improvement Programs Laboratory)/ARS (Agricultural Research Service)/AGIL (Animal Genomics Improvement Laboratory). Evaluations for milk, fat, and protein yields have been calculated since 1983 for bucks and since 1984 for does. An animal model replaced the sire model for yield in 1987. Evaluations are computed for Alpines, Experimentals, LaManchas, Nubians, Oberhaslis, Saanens, Sables, Toggenburgs, Nigerian Dwarves, and for crossbred animals of many of these breeds. Only animals that have unique IDs in the specified ID formats and Registered sires are evaluated.

The perception of the *overwhelming* tasks required for getting started on milk test is largely due to the “layers” of rules and procedures imposed by:

- DHI National Uniform Operating Procedures & Code of Ethics
- DHIA “local” associations responsible for assay of components (butterfat and protein) as well as SCC (somatic cell count)
- DRPC “regional” centers responsible for data entry into the formerly National USDA/AIPL (Animal Improvement Programs Laboratory) database which is used for statistical analyses and genetic/genomic evaluations
- CDCB (Council on Dairy Cattle Breeders) – current council responsible for maintenance of the national repository of dairy cattle data by agreement with the USDA/AIPL under a memo of understanding.
- Dairy Goat Registry and/or Association – may impose additional requirements above and beyond those set by the above

These layers of bureaucracy are in place to ensure the standardization, quality control and credibility of the documented data with necessary paper trails for training, assay reliability, and scale calibration verification, etc.

»Enjoy yourself, however you choose to document the teamwork between you and your Dairy goats!«



Photo Courtesy Curbstone Valley Farm

<http://curbstonevalley.com/blog>

#### Glossary:

DHIA – (Dairy Herd Improvement Association): An organization of dairy farmers who have formed a cooperative association to service a production recordkeeping system.

DHIR (Dairy Herd Improvement Registry) Records: DHIA production records recognized, published and used by the national dairy breed organizations.

DRPC (Dairy Records Processing Center): An organization that computes dairy production records

Herd Code: An 8-digit number used to identify each dairy herd; Example 55-27-0012

NCDHIP Handbook: The National Cooperative Dairy Herd Improvement Program Handbook is a comprehensive guide to DHI recordkeeping. It includes uniform procedures and record calculations. The handbook is a cooperative effort of dairy producers, breed associations, AI organizations, Cooperative Extension, and USDA.

Supervisor's Number: A unique number assigned to each field technician for testing purposes.

Test Plan: The record plan or type of testing procedure that occurs on test day.

#### Resources:

- DHIA Goats @ Facebook <http://www.facebook.com/groups/DHIAgoats/>
- ADGA approved DHIA Affiliates: <http://adga.org/forms/list-of-affiliates/> or [http://adga.org/wp-content/uploads/2015/05/regional\\_affiliates\\_2015.pdf](http://adga.org/wp-content/uploads/2015/05/regional_affiliates_2015.pdf)
- DRPCs
  1. [AgSource](#)
  2. [DHI Provo](#)
  3. [DRMS \(Raleigh\)](#)
  4. [Langston](#)
  5. [AgriTech Analytics](#)
- Registry Links to Milk Test Rules/Applications
  1. ADGA (American Dairy Goat Association) <http://www.adga.org>
    - a. Rules – are in the guidebook which is currently in a “member only” section of their website <https://adga.org/member-services/guidebooks/> or <http://adga.org/wp-content/uploads/2015/05/GB2015.pdf>
    - b. Application (new) <http://adga.org/forms/dhir-enrollment/> or [http://adga.org/wp-content/uploads/2015/05/new\\_dhir\\_herd\\_app\\_2015.pdf](http://adga.org/wp-content/uploads/2015/05/new_dhir_herd_app_2015.pdf)
    - c. Application (annual renewal) <http://adga.org/forms/dhir-renewal/> or [http://adga.org/wp-content/uploads/2015/05/dhir\\_renewal\\_2015.pdf](http://adga.org/wp-content/uploads/2015/05/dhir_renewal_2015.pdf)
    - d. ADGA approved DHIA Affiliates: <http://adga.org/forms/list-of-affiliates/> or [http://adga.org/wp-content/uploads/2015/05/regional\\_affiliates\\_2015.pdf](http://adga.org/wp-content/uploads/2015/05/regional_affiliates_2015.pdf)
    - e. Verification Test Form <http://adga.org/forms/verifications-form/> or [http://adga.org/wp-content/uploads/2015/05/vt\\_2015.pdf](http://adga.org/wp-content/uploads/2015/05/vt_2015.pdf)
    - f. Verification Test Instructions <https://adga.org/forms/verification-test-instructions/> or [http://adga.org/wp-content/uploads/2015/05/vt\\_instructions\\_2015.pdf](http://adga.org/wp-content/uploads/2015/05/vt_instructions_2015.pdf)
    - g. ADGA Height Form: [http://adga.org/wp-content/uploads/2015/06/ADGA\\_Height\\_form.pdf](http://adga.org/wp-content/uploads/2015/06/ADGA_Height_form.pdf)
  2. AGS (American Goat Society) <http://www.americangoatsociety.com/>
    - a. Rules [http://www.americangoatsociety.com/milkpail/pdf/DHI\\_2010.pdf](http://www.americangoatsociety.com/milkpail/pdf/DHI_2010.pdf)
    - b. Application <http://www.americangoatsociety.com/registration/pdf/DHIRApplication.pdf>



- c. National Dairy Herd Improvement Program Uniform Operating Procedures [www.dhia.org/udcp.pdf](http://www.dhia.org/udcp.pdf)
    - d. DHI Verification Form <http://www.americangoatsociety.com/registration/pdf/DHIVerificationTest.pdf>
  - 3. NDGA (Nigerian Dwarf Goat Association) <http://www.ndga.org/>
    - a. Rules <http://www.ndga.org/milk-program-rules.html>
    - b. Application [http://www.ndga.org/uploads/2/6/7/9/26790679/milk\\_test\\_permit\\_application.pdf](http://www.ndga.org/uploads/2/6/7/9/26790679/milk_test_permit_application.pdf)
    - c. Verification test form [http://www.ndga.org/uploads/2/6/7/9/26790679/milk\\_test\\_report.pdf](http://www.ndga.org/uploads/2/6/7/9/26790679/milk_test_report.pdf)
  - 4. MDGA (Miniature Dairy Goat Association) <http://www.miniaturedairygoats.net/>
    - a. Rules [http://www.miniaturedairygoats.net/production\\_page.html](http://www.miniaturedairygoats.net/production_page.html) and [http://www.miniaturedairygoats.net/milk\\_testing.html](http://www.miniaturedairygoats.net/milk_testing.html)
    - b. Application [http://www.miniaturedairygoats.net/milk\\_test\\_app.html](http://www.miniaturedairygoats.net/milk_test_app.html)
  - 5. TMGR (The Miniature Goat Registry) <http://www.tmgronline.com/>
    - a. Rules [http://media.wix.com/ugd/217727\\_f5facaac9294e07a7543d0416861426.pdf](http://media.wix.com/ugd/217727_f5facaac9294e07a7543d0416861426.pdf)
    - b. Application [http://media.wix.com/ugd/217727\\_08ff299fad7a45988755600ebbee9853.pdf](http://media.wix.com/ugd/217727_08ff299fad7a45988755600ebbee9853.pdf)
    - c. Verification Test form [http://media.wix.com/ugd/217727\\_26a17d0e6ead45f688f732acf72e4245.pdf](http://media.wix.com/ugd/217727_26a17d0e6ead45f688f732acf72e4245.pdf)
  - 6. IDGR-IFBR (International Dairy Goat Registry- International Fiber Breed Registry) <http://www.idgr-ifbr.com/>
    - a. Rules <http://www.idgr-ifbr.com/milk-testing-requirements.html>
    - b. Application <http://nebula.wsimg.com/e87e25c6add9b204757b2f689764e7d8?AccessKeyId=C9C12F53C53B1ABCB81D&disposition=0&alloworigin=1>
    - c. Barn Record Sheet <http://nebula.wsimg.com/de0a04179826c51bf4aadd489ba4d2e?AccessKeyId=C9C12F53C53B1ABCB81D&disposition=0&alloworigin=1>
- SOP for Dairy Goat Production Testing <http://adga.org/681/> or <http://adga.org/wp-content/uploads/2015/05/SOP-for-Dairy-Goat-Production-Testing-2014.pdf>
  - National DHIA Code of Ethics <http://www.dhia.org/code.pdf>
  - National Dairy Herd Improvement Program Uniform Operating Procedures <http://www.dhia.org/Uniform%20Operating%20Procedures%20Approved%20March%209%202014.pdf>
  - Glossary & Abbreviations <http://www.drms.org/PDF/materials/glossary.pdf>