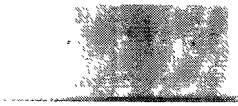
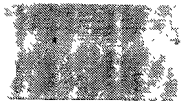




III. ANALYSIS OF ECONOMIC IMPACT

A. FDA's Assessment of Economic Impact Significantly Underestimates the Cost of the Proposal, and Does So In Three Key Areas

The economic impact of the proposed rule will be significant and detrimental to the dietary supplement industry. Based on a survey on NNFA members, we believe that FDA has grossly underestimated the economic impact on industry of the proposed rule. Mostly adversely affected will be very small and small (as defined by the FDA) establishments. We believe 50 to 60 percent of small or very small companies could or will go out of business. We estimate that product prices could increase by approximately 35 percent. Retailers, small business manufacturers and consumers will ultimately have to absorb these costs which will, most likely, result in less consumer purchasing of dietary supplements.

- *FDA and Industry Cost Estimates Vary Significantly*

  The following tables show the dramatic difference between FDA and NNFA's estimate of the costs associated with implementing the proposed rule. NNFA's estimates were drawn from a survey of its membership. A significant percentage of the cost is linked to finished product testing requirements. We estimate initial costs to industry at $675 million - five times greater than the FDA estimate and that the on-going costs will be nearly $1.2 billion per year - fifteen times greater than FDA's estimate - all to produce what FDA estimates is an overall benefit of $218 million.

First Year Cost to Industry		
	FDA's Stated Impact	**NNFA's Calculated Impact**
Very Small	46,000,000	195,000,000
Small	76,000,000	375,000,000
Large	5,000,000	105,000,000
Total	127,000,000	675,000,000

On-going Cost to Industry		
	FDA's Stated Impact	**NNFA's Calculated Impact**
Very Small	28,000,000	376,000,000
Small	47,000,000	643,000,000
Large	3,000,000	188,000,000
Total	78,000,000	1,207,000,000

We anticipate that the impact of the proposed rule will significantly reduce product variety, significantly decrease research and development, and reduce the number of new and innovative products introduced into the marketplace. The number of multiple ingredient products will likely decrease as companies will not have the resources to test finished products with multiple ingredients (e.g., ten or more). Customer choice will likely be limited as manufactures switch to products that are easier to test rather than more convenient multiple ingredient formulas (e.g., multivitamin/mineral formula or antioxidant formula). This will occur at a time when, according to a report from FDA, use of dietary supplements is likely to grow due to the aging of a large percentage of the population, increased interest in self-

sufficiency and advances in science uncovering new relationships between diet and disease.

- *FDA's Miscalculations Center Around Testing Costs*

There are three main areas where FDA has severely underestimated costs: 1) the number of analytical tests conducted; 2) the number of batches produced; and 3) in total laboratory and testing costs.

➢ *Number of Analytical Tests Conducted*

FDA's economic assumptions appear to be based on a regulation that broadly allows for component testing of shipment lots (i.e. upon receipt). In contrast, FDA has proposed in section 111.35(g) that the bulk of testing be performed, if possible, on every batch of finished product. NNFA believes, as a result, that FDA's calculation as to the number of analytical tests that must be conducted under the proposed rule has been underestimated.

FDA states on page 12238 of the proposed rule that:

> The proposed rule requires only tests for identity, purity, quality, strength, and composition of the final product. The option for stricter cGMP regulations would also require tests of components. Estimating the number of component tests per batch is complicated, because component tests are made on the shipment lots, rather than on the parts of the lots that actually go into the final product. For example, if a lot of some ingredient is used in 6 batches of final products, it would probably be tested only once. The establishment itself may test the shipment lots, and during in-process stages for identity, purity, quality, strength, and composition, unless final product testing is done.
>
> The number of component tests per batch of final product would equal the number of tests per component, multiplied by the number of components per batch, divided by the batches per shipment lot (to account for the production of multiple batches of dietary supplements from single lots of components).

This is significant. A large percentage of the economic burden imposed by this rule can be linked to extensive finished product testing requirements. FDA identified 6.5 as the average number of batches per shipment. We assume, therefore, that FDA has miscalculated based on this multiple. This discrepancy is probably the prime source of the huge variance between FDA and NNFA's assessment of testing requirements on the economic impact of the proposed cGMPs.

It is interesting that FDA's economic analysis more closely reflects the testing regime NNFA recommends than the FDA proposal. NNFA's proposed testing regime allows companies to test for specifications at the most appropriate point in

the manufacturing process, including in the shipment lot, as opposed to mandating finished testing of every batch.

- *Number of Batches Produced*

  FDA underestimates the number of batches produced by a company. FDA states in Table 14 of the proposed rule that the number of batches produced on an annual basis by small establishments is 554 and that a large establishment produces 309 batches annually. In contrast, NNFA survey data shows that a mean of 1,600 batches are produced by small companies and a mean of 2,750 batches are produced by large companies annually. We discuss this further, including the number of facilities per company, on page 72.

- *Total Laboratory and Testing Costs*

  FDA has significantly underestimated testing costs imposed by the proposed rule. FDA estimates that $20 represents the lower boundary and $150 the upper boundary of per test analytical costs. The average cost per test was about $60. In contrast, NNFA found that test costs range between $26 and $775, with an approximate average cost of $302. This is a five-fold increase from FDA's estimate. This variance has huge economic implications for both industry and consumers.

  FDA states on page 12240 of the Federal Register that:

  > Changing our assumption about the midpoint of testing costs would change our estimate of the cost of the rule. If the cost of testing each batch is actually significantly higher, then the impact to those firms that incur the cost and to society will have been understated.

  NNFA discuss and provides additional information on this issue on page 68.

B. A Survey of NNFA Members Provides a More Realistic Estimate of the Cost of Implementing the Proposed Rule

In this section, NNFA has outlined the costs associated with holding and distributing of dietary supplements, documentation and recordkeeping, capital costs of equipment, customer complaints, new laboratory and ongoing laboratory costs, testing, batches, personnel and labor, adverse event reports, method development/validation and public health impacts. The flow is parallel with the costs analysis presented in Section VII of the proposed rule.

A summary of the FDA proposed GMP rule calculated costs is found in **Appendix E** and a summary of the NNFA calculated costs, based on data from the NNFA survey, is shown in **Appendix F**.

Data in support of our comments is drawn from a detailed NNFA survey and input from industry companies, laboratories and consultants. In gathering information for our survey, NNFA used the same criteria of company size as described by FDA:

Very small – fewer than 20 employees; median revenue under $1 million
Small – 20 to 499 employees; median revenue $5 to $10 million
Large – 500 or more employees; median revenue $20 to $50 million

NNFA's calculations are an estimate based on a dietary supplement industry which we believe is comprised of 1175[17] companies, including suppliers of dietary ingredients and manufacturers or processors of finished products. We have determined, based on our own member-supplied data, that very small companies average one establishment per company, small companies average 1.05 establishments, and large companies average two establishments.

- **Costs of Holding and Distributing Dietary Ingredients (Pg. 12237)**

  FDA estimates that the proposed rule would increase the cost to hold and distribute dietary ingredients by $100 for very small establishments, $300 for small establishments and $2,000 for large establishments.

  NNFA estimates that it would initially cost $14,000 for small companies to comply with the proposed rule and $48,000 in on-going costs to comply. We estimate it will cost small companies $43,000 in initial and $12,000 in on-going costs.

  These estimates include a combination of dependent factors (e.g., increased purchasing costs, higher inventory costs, costs of capital, physical space and storage areas for maintaining and holding inventory and retained samples, extra wage costs for warehouse personnel and increased handling of inventory to retrieve for samples on a more frequent basis).

- **Costs of Documentation and Recordkeeping (Pg. 12238 and 12242)**

  In the proposed rule, FDA did not adequately define documentation and recordkeeping costs; however, FDA estimates in Table 15 that the annual recordkeeping time is ten percent of set-up time.

  Based on the survey results, NNFA estimates it will initially cost very small companies $22,000 to comply with documentation and recordkeeping requirements in the proposed rule. Ongoing costs are estimated at $53,000. Small companies estimate $12,000 in initial and $63,900 in on-going compliance costs. There may be some overlap in this estimate for personnel costs.

- **Capital Costs for Equipment (Pg. 12238)**

[17] Nutrition Business Journal Supplement Business Report 2002

The proposed rule states that "very small establishments would on average spent 0 to $1,000, with $100 the most likely amount" for equipment costs.

NNFA estimates the following costs for a very small company: Initial costs of $73,000 (year one) for new production equipment (including automatic equipment). Annual ongoing costs would be approximately $31,400 (years two and beyond) for maintenance, replacement of parts, sanitation and calibration. Depending on the nature and use of the equipment some would have to be replaced after five years of use.

NNFA estimates the following costs for a small company: Initial cost of $155,000 (year one) for new equipment. Annual ongoing costs would be approximately $15,000 (years two and beyond) for maintenance, replacement of parts, sanitation and calibration. Some equipment would have to be replaced after five years of use.

- **Customer Complaint Costs (Pg. 12238)**

The proposed rule states that the "quality unit must review all customer complaints involving the failure of a dietary supplement to meet any of its specifications." There is no cost estimate mentioned in the proposed rule. NNFA estimates customer complaint costs, based on three possible levels of consumer complaints, will range is from $60 to $1,000 for each customer complaint.

Category 1 - Minimum customer complaint costs: This category is estimated at $60 for sensory types of complaint (e.g., color change of iron tablet or taste of product went from bland to sour). This category represents approximately 95 percent of all customer complaints to dietary supplement manufacturers. Total time impact would take approximately two to three hours of time and involve three people to investigate a single complaint.

Category 2 - Moderate customer complaint costs: The second category would cost a company approximately $80 per complaint to investigate, including costs for microbiological analysis (e.g., requiring a microbiological analysis @ approximately $20/test). This category represents approximately 3 percent of customer complaints to dietary supplements manufacturers. The total time impact would be approximately two to three hours with four people involved in investigating the complaint.

Category 3 – Extensive customer complaint costs: The third category of complaint would cost $350 to $1,000 per complaint to investigate, including potency testing (e.g., need to reconfirm label claim or test for disintegration or dissolution for the lower range cost and adding herbal analysis sent out to an independent lab). This category represents approximately two percent of customer complaints. The total time to investigate would be approximately five to six hours, or more depending on how many tests are involved and require five to six people to investigate the complaint.

- **New Laboratory Costs and Ongoing Laboratory Costs (Pg. 12238 under capital costs for physical plant and equipment)**

  FDA's proposed rule will impact companies in the area of laboratory costs. NNFA estimates new lab facility costs would run approximately $200/ft^2$ (without equipment or personnel). It is estimated that any company (very small, small and large) would have to allocate $1,000,000 to $5,000,000 to set up a new in-house laboratory. There are similar costs for setting up an independent contract laboratory. For a start-up laboratory, the majority of costs would be for capital equipment (e.g. analytical equipment, computers, waste management, etc.) and quality control personnel (including training, benefits, etc). For a mature laboratory the costs are basically for the quality control (personnel) and equipment maintenance. The following represents major cost areas:

  - Laboratory equipment (depends on what the laboratory is testing).

  - Thin layer chromatography (TLC), gravimetric, gas chromatograph (GC), high pressure liquid chromatography (HPLC), ion capillary plasma atomic absorption (ICP-AA), capillary electrophoresis (CE), ultraviolet (UV)-visible (VIS) spectrophotometry, titration, mass spectrometer (MS), high resolution GCMS, HR-GCMS-MS, environmental chamber, moisture analyzer, ovens, refrigerators, microbiological hood, microscope for microscopy, centrifuge, mixers, water purification system (deionized) etc.

  - Total costs in laboratory equipment would run between $750,000 to $1,000,000 plus.

  - Personnel/Training: Varies from one person for a very small company to an entire staff (four to five people plus) depending on the size of the laboratory (includes salaries and benefits). Based on data from the NNFA survey for companies that have an in-house laboratory, most establishments indicated that they would have to hire four analytical chemists which could easily add $200,000 per year to the payroll.

  - Equipment maintenance repair/replacement annual costs: For example, to maintain a GC-MS costs $20K/yr/equipment and HPLC costs $20K/yr/instrument. It is not uncommon for a small company to have five HPLCs. The annual maintenance costs would be $100,000/yr just on the HPLCs alone. Other equipment would run $200 to $1,000/yr depending on the type of equipment and numbers in the laboratory.

  - IT/Computers – approximately two desktops for the average laboratory.

  - Waste management – solvent waste disposal costs vary on an annual basis.

- Raw materials: chemicals, reagents, reference standards ($50/gm to $1,000/gm etc.) and gases (e.g., air, acetylene, etc.).
- Emergency shower, eye wash and maintenance.
- Security and safety storage cabinets.
- Maintenance of laboratory facility.
- Accreditation and compliance.

Basic life expectancy for laboratory equipment is five years and costs to upgrade and replace these items would run approximately $250,000 per five-year period. For very small and the small companies we estimate $75,000 per year for initial equipment costs and an ongoing cost of $29,000 per year. Small companies estimate costs at $158,000 initially and $31,000 for on-going expenses.

In summary, the proposed rule would cause substantial hardship to both very small and small companies due to initial costs. NNFA believes that there will be severe disruptions and delays as equipment manufacturers will not be prepared to meet the increased demand for laboratory equipment and independent laboratories will be unable to meet testing demand in a timely manner.

- **Costs Per Test (Pg. 12240)**

The proposed rule assumes "that $20 per test represents the lower boundary with $150 at the upper boundary. The average cost per test was about $60." In the proposed rule the FDA does not site specific examples of tests costs (e.g., a vitamin, a mineral, an herb, microbiological, botanical identity test, heavy metal, pesticide, etc.) and does not indicate if this would be an in-house analysis or sent out to a contract laboratory.

Several examples of current and representative pricing information on Botanicals & Natural Products is shown in **Appendix A**. Laboratory equipment/methods commonly used to perform tests on analytes/bioactives or marker compounds are TLC, GC, HPLC, CE, UV-VIS Spectrophotometry, Titration, IPC, HR-GCMS, HR-GCMS-MS and beyond. Test costs range between $26 - $775 with an approximate average cost of $302 or a five-fold increase from FDA's estimates.

An example of a typical Work Order for a sample of the single herbal ingredient Echinacea root is shown in **Appendix B**. Outlined would be the required tests as proposed by FDA. Microbiological testing, pesticide screen, quantitative analysis of heavy metals, botanical identification and quantitative analysis are listed. The total price listed was $920/test for this batch alone.

- **Case Studies (Blinded)**

The following are two case studies illustrating the magnitude of testing costs. These are blinded case studies, based on actual data submitted by NNFA companies:

- **Company A Case Study**

  The following is an example of testing costs is shown in **Appendix C**. The company represented a large manufacturer as defined by FDA in the proposed rule. Four typical categories of products were selected:

  - A single ingredient product (e.g., SAMe)
  - A product with two actives (e.g., glucosamine sulfate and chondroitin sulfate)
  - A multiple ingredient product (e.g., multiple vitamin or antioxidant formula)
  - A complex product (e.g., multiple vitamin and mineral with multiple nutraceuticals)

  Analytical costs/lot, manufacturing costs/lot, annual number of lots tested, total analytical costs, total manufacturing costs and percent analytical/manufacturing costs were documented. Both contract laboratory and in-house data is presented. Total analytical testing costs of products within these four categories are $314,000.

  Based on the proposed rule, FDA estimates that the adjusted total annual costs for testing would be:

  $11,230 for very small establishments
  $19,907 for small establishments
  $7,626 for large establishments

  Comparing actual costs (for small establishments) to FDA proposed costs: $314,000/$7,626 or over 41 times greater. FDA has grossly underestimated costs per test and total analytical costs for all size companies.

  Based on the proposed rule, FDA estimates the following annual costs per establishment to be:

  $38,000 for very small establishments
  $61,000 for small establishments
  $47,000 for large establishments

  These costs would include areas of personnel, production and process controls, equipment, testing, etc. Testing costs alone would be between 10 and 50 times more than what FDA has estimated.

➢ **Company B Case Study**

A second company case study on testing costs is shown in **Appendix D**. This represents a small company with less than 250 employees. The company manufactures approximately 250 products in tablets, capsules, softgels and powders comprising over 300 different raw material ingredients. The average number of ingredients is 14.3, of which 8.7 are dietary ingredients, of which they estimate 7.6 may be testable in each finished product batch. They also estimate that approximately 200 of the raw materials may be testable in the finished product based on the proposed rule. The company processed and released approximately 1,350 batches annually. The current QC/QA annual budget exceeds $1.5 million dollars representing a 4,500 square foot laboratory with 20 QC/QA/laboratory employees.

In the past 12 months the company completed approximately 500 product potency assays and approximately 250 raw material potency determinations for release testing. In addition, they have completed over 36,000 tests on over 4,400 different samples covering potency assays, raw material potency assays and microbial tests. Shelf life, validation, vendor certification, sensory, physical and purity analyses were not included.

Under the proposed rule, this company estimates handling an additional 10,000 contract laboratory tests. They estimate at least two additional full-time employees would be necessary to meet these demands. Estimated wage and benefits range from $12 to $22 per hour. Investigations of out-of-specifications would require at least 1 additional QC chemist at a wage and benefits cost of $15 to $24 per hour. The company estimates that these costs would be very low since the example only includes testing for potency of 100% of finished products. This company gave four product examples of average testing costs. Product categories included:

- A single ingredient nutritional
- A two-ingredient product (amino acid plus herbal)
- A 15-ingredient multiple vitamin product
- A 35-ingredient complex

The average cost per potency test on these products ranged from $99 to $298. They estimated the average costs for the following nutrients to be (Note: these costs are for in house testing. Use of independent contract laboratories would be higher).

Mineral - $70
Vitamin - $120
Herbal - $290

Other nutrient - $175

There is very little opportunity for cost savings as contract labs rarely offer price discounts for under 10 duplicate analyses and it is not cost effective to hold inventory waiting for products with similar analytes to be tested concurrently. Testing time for contract laboratories varies from days to even weeks depending on the complexity of the product. There are many instances where the finished product matrix (typically an herbal with a nutrient or multiple herbal products is so complicated that the laboratory cannot perform the analysis due to extraction or matrix issues).

The company has estimated the costs for product release potency tests required by the proposed regulation based on the following formula to be: **$1,473,374**

(# of testable ingredients) X (# of batches annually) X (ave. testing costs)

This represents an increase of **$1.4 million** over their current product release testing costs which does not include additional potency testing of raw materials, shelf life testing and material certification estimated at **$200,000** annually.

Other expected costs are likely to occur with the proposed requirement of testing 100 percent of ingredients in finished products for identity, purity, quality, strength and composition. This company anticipated more false negative or failing results will occur as a result of the complexity of the finished product matrix which, in some cases especially with herbals, would be nearly impossible to test. Additional personnel, time and financial resources would be required to address these issues. One solution for a manufacturer is to add more ingredient overages to the formula also adding to the cost of individual formulas that are affected.

As a result of 100% of finished product testing, there would be a significant impact on the availability of testing facilities. It is estimated that there could be more than a 20-fold increase in the number of analyses being pursued by the industry. It would be doubtful that this large of an increase could be managed by the current contract laboratories or in-house laboratory facilities, thus requiring costly laboratory expansions. There would be significant increases in workload that would affect the turn around time at contract laboratories and thus further escalate product costs for holding inventory until tests are complete.

Based on NNFA survey results very small companies will have to spend an additional **$365,000** per year just on testing. Small companies

responded as spending an additional **$932,000.** It is calculated that large companies will be required to spend **$3,960,000.**

- **Batches (Pg. 12241)**

  Table 14 of the proposed rule lists the number of batches produced on an annual basis by very small establishments – 223; small establishments – 554; and large establishments – 309.

  NNFA's survey data shows that a mean of 1,600 batches are produced by small companies and a mean of 2,750 batches are produced by large companies. For very small companies, FDA estimates appear to be in line with NNFA's finding as to the number of actual batches produced.

  NNFA's calculations are an estimate based on a dietary supplement industry which we believe is comprised of 1175[18] companies. This includes suppliers of dietary ingredients and manufacturers or processors of finished products. We have determined, based on our own member-supplied data, that very small companies average one establishment per company, small companies average 1.05 establishments, and large companies average two establishments.

- **Cost of Personnel/Labor Costs (Pg. 12241)**

  FDA substantially understated the personnel costs. NNFA estimates the true increase in personnel costs to be at least 49 percent higher than FDA's estimate.

  In the proposed rule FDA states, "We (FDA) used the average manufacturing wage of $15.65 per hour to estimate the cost of labor." Based on information obtained by the NNFA, a broad wage and salary survey conducted by The Employer Group[19] reveals that the mean wage for quality control technicians is nearly $17.91 per hour and $27.00 per hour as a mean for quality control engineers (data in 2001 dollars). Many of the companies surveyed revealed that they anticipate having to hire high level employees (Ph.D.s) to complete many requirements of the proposed rule. The responding companies expect that the wage of such high-level employees will be about $48.00 per hour.

  In addition to these wage figures, companies must bear the additional burden of paying payroll taxes (Social Security, Medicare, federal and state unemployment), worker's compensation, vacation and sick leave benefits, as well as life insurance, disability, medical, health, retirement, and other employee benefits. Most companies estimate the cost of providing the various benefits adds from 30% to 50% to the basic wage costs. Factoring in these benefits, the average cost of hiring or paying workers for the three groups of employees listed above would increase to $23.28, $35.10 and

[18] Nutrition Business Journal Supplement Business Report 2002
[19] Employer Group, Engineering and Technical Compensation Survey, 2002

$62.40 per hour at the lower level and $26.86, $40.50 and $72.00 per hour at the higher level, respectively.

- **Adverse Events Report Costs (Pg. 12243)**

  In the proposed rule FDA states, "There is one illness for each recall. We (FDA) assumed that for each class 1 and 2 recalled product there was only one illness that was reported to the public health authority". The FDA did not give a cost basis the establishment would have to pay to cover any level of recall.

  NNFA estimates the following costs per event. For each company a class 3 recall would cost approximately $4,000. The approximate amount of time would be 3 to 4 weeks for the complete investigation on a part-time bases from the time of receipt of the event to completion. Costs estimates for a class 1 would be $100,000 plus. This would take three to four weeks initially and may take several months to complete the entire investigation. This would be a more time intensive investigation. A class 2 recall would cost somewhere between class 3 and class 1.

- **Method Development and Validation Costs (not addressed in the rule)**

  AOAC:

  Estimated internal method development, based on using an available industry method, (i.e. AOAC) costs are approximately $5,000 with method validation costs estimated at $15,000 when one outside laboratory is used. This estimate increases based on number of laboratories involved in the validation process; typical validations involve three outside laboratories. Use of AOAC in an "Official" simple validation protocol generally requires eight to ten independent laboratories and there is a $30,000 application fee. The total estimated costs for a single ingredient to complete this process would be $250,000 per method. Method validation costs vary from company to company. Estimates from the company represented in **Appendix D** (Large company, <250 employees, annual sales of $50 to $80 million) are more than $600,000 (lowest cost estimate) annually based on approximately 200 testable analytes.

C. FDA Has Overestimated the Economic Benefits of the Proposed Rule and Underestimated the Cost

The proposed rule states on page 12244 that FDA "developed the hypothetical search model to estimate the implicit value to consumers of better product quality although we lacked a model that could enable us to directly estimate consumer preferences for dietary supplement quality." FDA believes that the overall cost savings from the rule will exceed implementation costs. Central to this comparison is FDA's argument that the consumer would spend significantly less time searching for and selecting dietary supplement products.

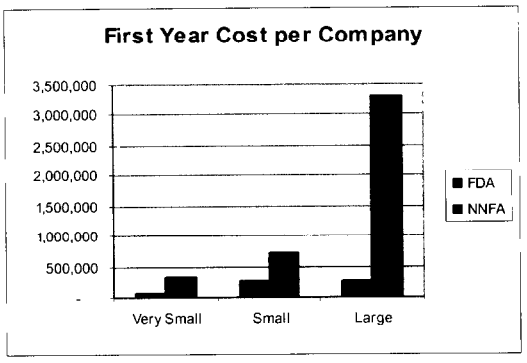
NNFA believes that there is nothing with or without this rule that provides for any qualitative differentiation of products which would be readily observable to consumers and therefore FDA overestimates the value of this. Therefore, it would be difficult to see how the consumer could experience any time savings in the selection process as a result of them.

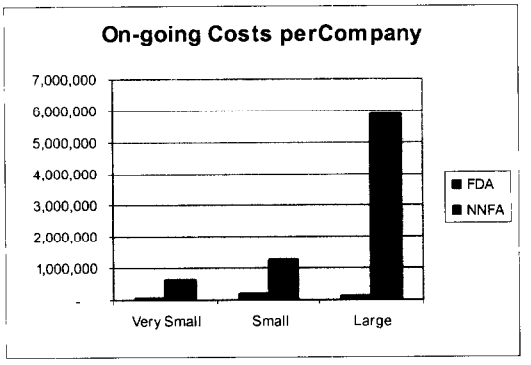
From the data we collected it appears that FDA severely underestimated the cost of compliance. **Appendix F** is NNFA's calculation of the cost of the proposed rule. This appendix uses some of FDA's assumptions (adjusted for number of companies v. establishments) and combines them with cost estimates that NNFA feel more accurately reflects the experience of its member companies based on a survey of its membership.

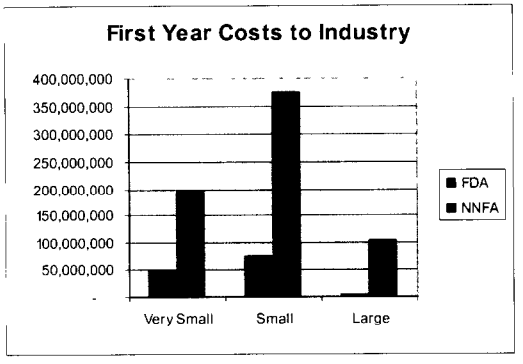
The following table compares the FDA cost estimates for both individual establishments and the industry and compares it to the data collected by NNFA from its member companies. Based on the NNFA's data, the first year cost of compliance for very small companies would be $308,870 with on-going annual costs of $598,916, amounts that companies whose median revenue is under one million dollars could not afford. Similarly, small establishments, whose median revenue is from $5-10 million, would face unreasonably excessive compliance costs. In FDA's own words "...it is possible that a large number of these... establishments would be unable to absorb the compliance costs and close." (Pg. 12247)

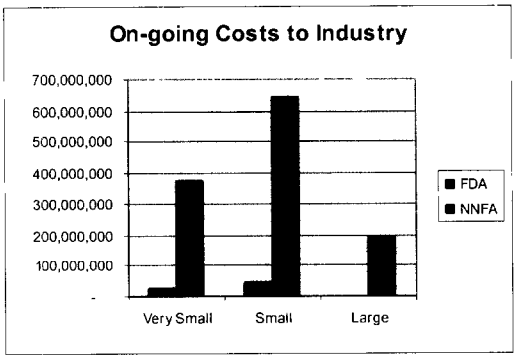
Cost per Company				
	First Year		On-going	
	FDA's Stated Impact	NNFA's Calculated Impact	FDA's Stated Impact	NNFA's Calculated Impact
Very Small	62,000	310,000	38,000	599,000
Small	261,360	728,000	161,000	1,248,000
Large	249,000	3,297,000	141,000	5,868,000
Cost to Industry				
	First Year		On-going	
	FDA's Stated Impact	NNFA's Calculated Impact	FDA's Stated Impact	NNFA's Calculated Impact
Very Small	46,000,000	195,000,000	28,000,000	376,000,000
Small	76,000,000	375,000,000	47,000,000	643,000,000
Large	5,000,000	105,000,000	3,000,000	188,000,000
Total	127,000,000	675,000,000	78,000,000	1,207,000,000

*FDA's per establishment cost was adjusted to a per company cost for consistency with NNFA's calculated costs.









D. NNFA Proposed Recommendations Would Significantly Reduce the Economic Impact of the Final Rule

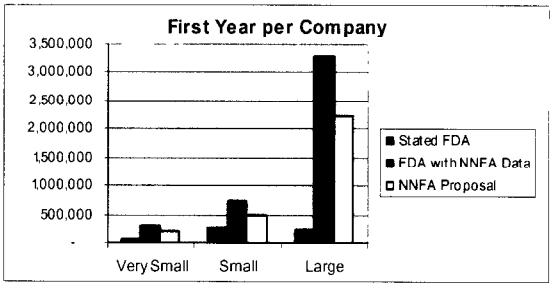
NNFA believes the testing scheme as proposed by FDA poses the most significant economic burden for the industry. In contrast, NNFA's recommendation for a more appropriate testing regime gives companies the flexibility to determine what test or examination is needed and when to test to ensure specifications have been met. As such, a manufacturer has the option to confirm specifications in the components and dietary ingredients upon receipt or in the finished batch. This is a more cost effective approach which still provides the controls necessary to meet the legitimate goals GMPs.

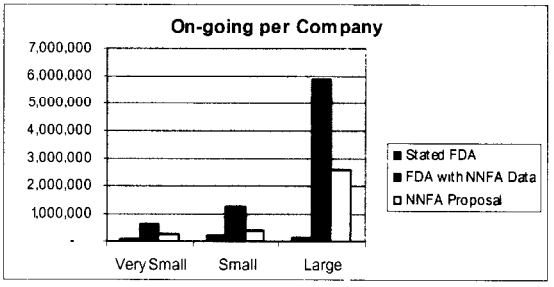
Costs under NNFA's proposal still require a significant investment on the part of industry companies. We outline those costs below, but estimate the initial cost of this alternative for very small companies to be about $203,000, about 65 percent of the cost of the proposed rule. Small and large companies would realize similar savings. More significantly, on-going costs for very small establishments would be 63 percent lower than under FDA's proposed rule (67 percent and 57 percent for small and large companies, respectively).

The tables below summarize the economic impact to individual companies of NNFA's recommendation. An in-depth explanation of our rationale for asserting lower costs follows these tables.

Company First-year Cost			
	Stated FDA	FDA with NNFA Data	NNFA Proposal
Very Small	62,000	310,000	203,000
Small	261,360	728,000	478,000
Large	249,000	3,297,000	2,229,000

Company On-going Cost			
	Stated FDA	FDA with NNFA Data	NNFA Proposal
Very Small	38,000	599,000	222,000
Small	161,040	1,247,000	403,000
Large	141,000	5,868,000	2,551,000

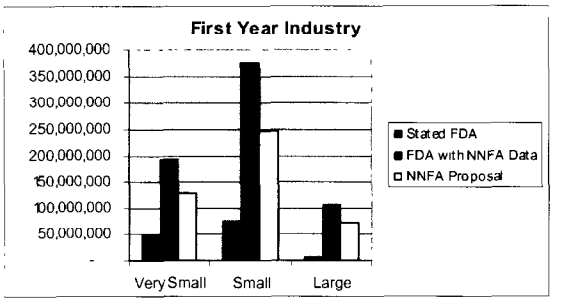


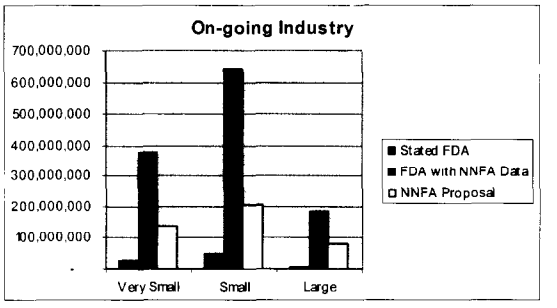


The following tables show that estimated cost to industry of NNFA's alternative. We believe that overall economic impact on industry under our rule would be 34% lower than FDA's proposed rule initially and 65 percent lower on an on-going basis.

Industry First-year Cost			
	Stated FDA	FDA with NNFA Data	NNFA Proposal
Very Small	46,000,000	195,000,000	127,000,000
Small	76,000,000	375,000,000	246,000,000
Large	5,000,000	105,000,000	71,000,000
Total	127,000,000	675,000,000	444,000,000

Industry On-going Cost			
	Stated FDA	FDA with NNFA Data	NNFA Proposal
Very Small	28,000,000	376,000,000	139,000,000
Small	47,000,000	643,000,000	207,000,000
Large	3,000,000	188,000,000	81,000,000
Total	78,000,000	1,207,000,000	427,000,000





NNFA's recommendation for a better rule results in a more reasonable economic burden on companies while maintaining an appropriate level of control to produce safe and accurately labeled dietary supplements for the following reasons.

- ***An Appropriate Level of Flexibility Will Reduce Testing Costs***

  - Testing incoming shipments of materials will reduce the times a particular component must be tested (FDA assumption was that one shipment would be used in an average of 6.5 batches).

  - Based on conversations with our members, NNFA is not aware of many companies which order only the amount of components that will be used to manufacture a particular order (a practice used with the "just in time" manufacturing model).

  - Many manufacturers in this industry are contract manufacturers or provide contract manufacturing services. These companies have a number of formulations they make in various quantities for numerous private label distributor companies or retail store brands along with custom formulations made for specific customers. Additionally, many of these contract manufacturers make batches of various sizes due to manufacturing capabilities as well as customer orders. The flexibility to test materials at the incoming stage greatly reduces their testing burden as it spreads the cost of such testing among various batches. These savings are then likely reflected throughout the distribution chain.

  - In many instances testing at incoming stage is easier and yields more accurate results thus reducing the number of out of specification results due to interference and other finished product testing issues. This reduces the cost to retest and investigate out of specification results.

  - Appropriate tests for incoming components may use less costly analytical methods and standards

  - While many dietary supplements could not be tested at the finished product stage, other could be, forcing the manufacturer to test the same shipment of component at the incoming stage and the finished product stage depending on the matrix and available methods for various products.

- All of the above factors will reduce laboratory costs (equipment, number of test performed, standards and other laboratory supplies, laboratory personnel).

- Additionally, reducing the amount of testing that must be performed at the finished product stage will decrease the associated storage and personnel cost of holding quarantined finished product awaiting analysis or results prior to approval and release.

- ***Costs are Minimized Through the Use of Certificates of Analysis***

The use of verified certificates of analyses will save approximately $260,000,000 of the $780,000,000 we estimate our proposal will save.

- When using a verified certificate of analysis the identity test is the only required test as long as the certificate addresses all of the established specifications. This could reduce the amount of tests performed on a shipment of incoming material on average by three to twelve tests on average, depending on the component or dietary ingredient or dietary supplement and the established specifications. This would radically reduce the number and frequency of many tests.

- Bottlers, repackagers and private label distributors could reduce their testing burden using a verified certificate of analysis for their shipments of incoming bulk dietary supplement products. This would eliminate costly, redundant testing being conducted on the same batch of finished product.

- The economic savings achieved through the use verified certification of analyses will reduce the number of small manufacturers that would be forced out of business due to the economic burden of testing and/or lack of laboratory capability.

- Reducing the amount of testing that must be performed on incoming materials will decrease the associated laboratory costs and storage and personnel costs of holding quarantined components, dietary ingredients or dietary supplements awaiting analysis or results prior to approval and release.

- The use of certificate of analyses will eliminate many unnecessary and redundant tests because it avoids requiring multiple companies to test the same material.

- NNFA recognizes there is an economic cost to verifying the certificate of analyses, but this cost is far less than the cost of meeting a requirement to test for all specifications in each batch or at the incoming stage.

- Based on member input and review of our survey data, NNFA estimates the use of verified certifications of analyses could reduce the overall cost of incoming testing by up to 75 percent. The average number of specifications and related

testing pertinent to the identity, purity, quality, strength and composition of incoming components and dietary ingredients could range on average from three to fifteen. With a verified C of A, the manufacturer would be required to conduct identity testing, but could choose to reduce or eliminate the other tests.

- ***Batch Testing Based on a Statistical Approach Will Lower Costs***

The use of statistical testing will save approximately $520,000,000 of the $780,000,000 we estimate our proposal will save.

- Once product conformity and process consistency has been statistically established, manufacturers can reduce the amount and frequency of testing performed on the finished product.

- This in turn not only reduces testing costs, but also reduces related laboratory costs as well as the storage and personnel cost of holding finished batches awaiting test results prior to release.

- Specifically, based on member input and survey date, NNFA estimates use of statistical testing would have an economic savings of up to 66 percent. Finished product testing typically assesses specifications related to potency, impurities that could occur during the manufacturing process, physical characteristics, solvent residues, etc. Issues such as microbial contamination, heavy metals and pesticides are typically addressed at the incoming stage. The number of tests that would be required to assess these specifications would include a minimum of one potency test per dietary ingredient and average between three – eight tests for other specifications per product. Once the baseline data for a product has been evaluated, using an statistical approach to testing could reduce the frequency of potency testing for stable ingredients and reduce or eliminate testing for impurities and physical characteristics.